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PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

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RETMA MEMBER
RADIO-ELECTRONICS-TELEVISION MANUFACTURERS ASSOCIATION

AIRCASTLE MODEL 652.8TF1

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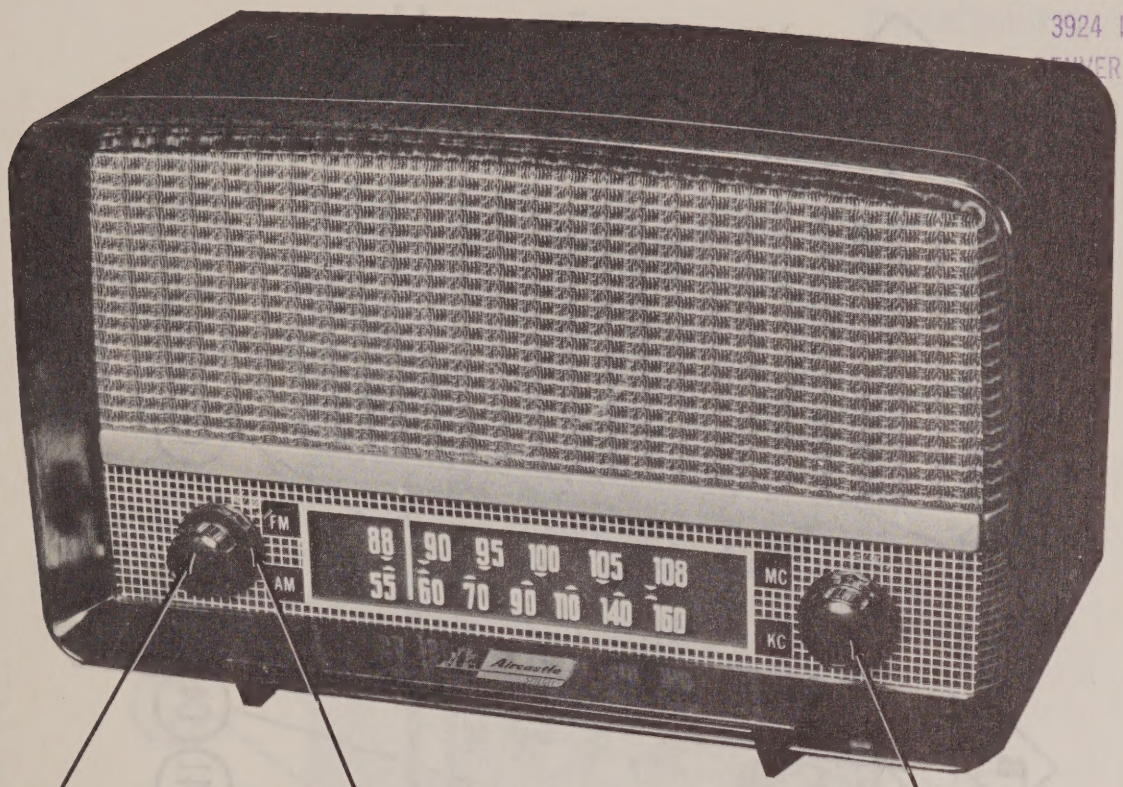
3924 MEADE ST.
DENVER, COLORADO

AIRCASTLE
MODEL 652.8TF1



VOLUME CONTROL ON-OFF SWITCH

FUNCTION SELECTOR SWITCH

TUNING CONTROL

AIRCASTLE
MODEL 652.8TF1

TRADE NAME	Aircastle Model 652. 8TF1		
SUPPLIER	Spiegel, Inc., 1061 W. 35th St. Chicago 9, Ill.		
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver		
TUBES(Seven)	Types 6BJ6 RF Amp., 12AT7 FM Mixer-Osc., 12BE6 AM Conv., 6BJ6 FM-AM IF Amp., 12AU6 2nd FM IF Amp. 19T8 Det-AVC-AF Amp., 50C5 Audio Output		
POWER SUPPLY	110-120 Volts AC-DC	RATING	.27 Amp. @ 117 Volts AC
TUNING RANGE — BROADCAST	540-1620KC	FREQ. MOD.	88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
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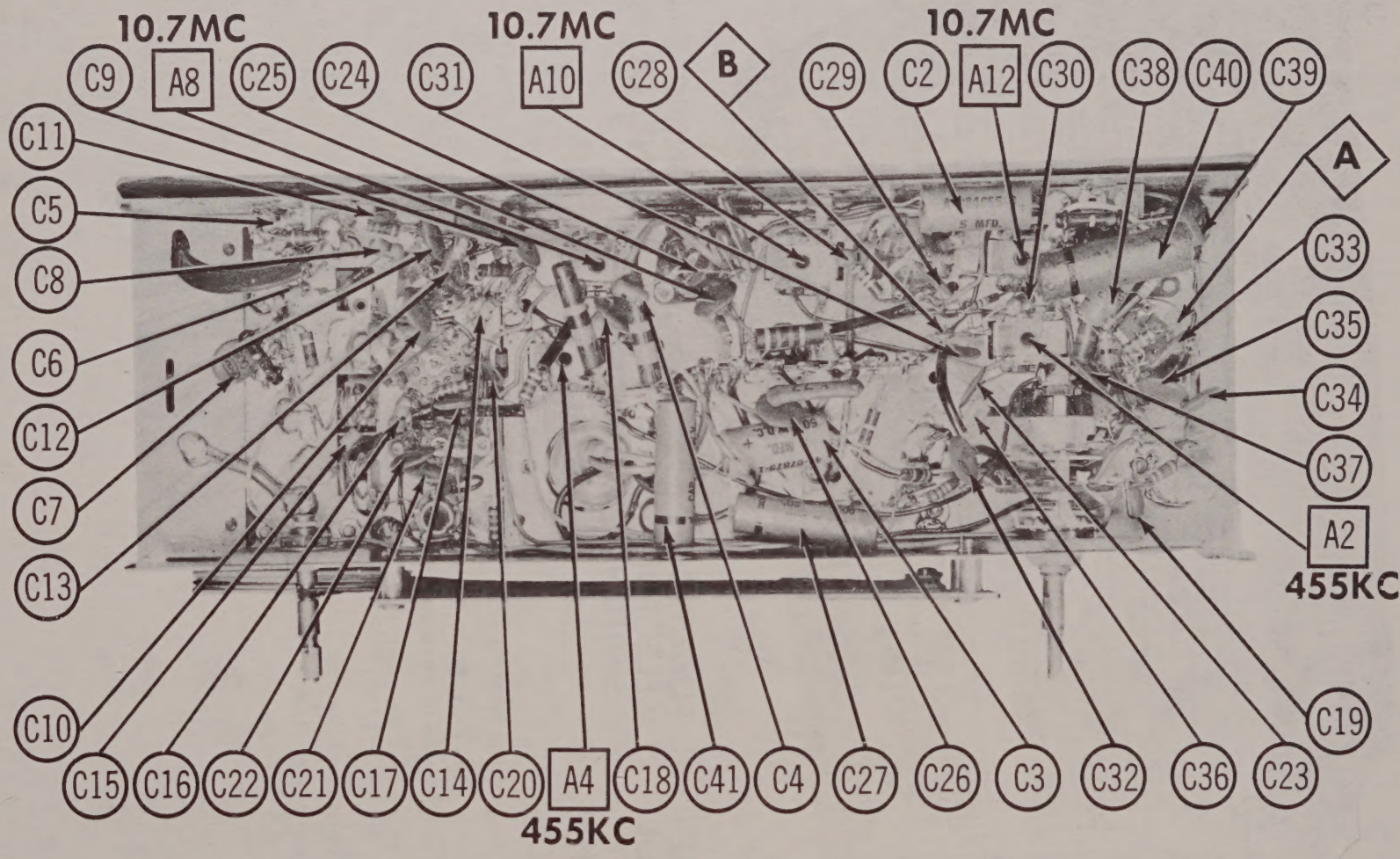
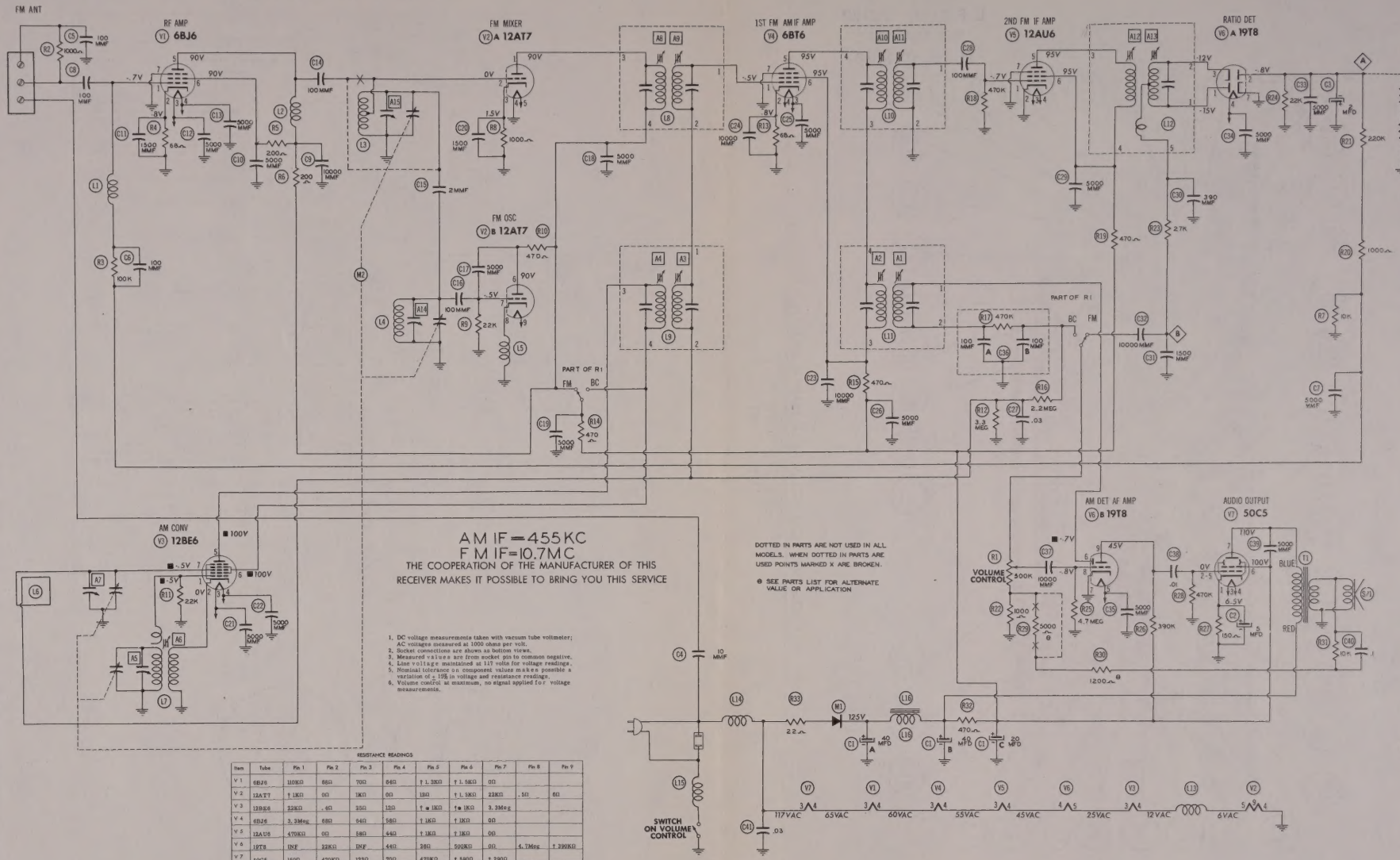


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



AM IF=455KC
F M IF=10.7MC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BJ6	110KΩ	68Ω	70Ω	84Ω	† 1.3KΩ	† 1.5KΩ	0Ω		
V 2	12AT7	† 1KΩ	0Ω	1KΩ	0Ω	1Ω	† 1.5KΩ	22KΩ	.5Ω	0Ω
V 3	12BE6	22KΩ	.4Ω	25Ω	12Ω	† ⊕ 1KΩ	† ⊕ 1KΩ	3.3Meg		
V 4	6BJ6	3.3Meg	68Ω	84Ω	56Ω	† 1KΩ	† 1KΩ	0Ω		
V 5	12AU6	470KΩ	0Ω	58Ω	44Ω	† 1KΩ	† 1KΩ	0Ω		
V 6	19T8	1MF	22KΩ	INF	44Ω	36Ω	500KΩ	0Ω	4.7Meg	† 390KΩ
V 7	50C5	150Ω	470KΩ	125Ω	70Ω	470KΩ	† 330Ω	† 390Ω		

MEASUREMENTS ARE IN FM POSITION UNLESS OTHERWISE DESIGNATED.
⊕ MEASURED IN AM POSITION.
† MEASURED FROM OUTPUT OF M1.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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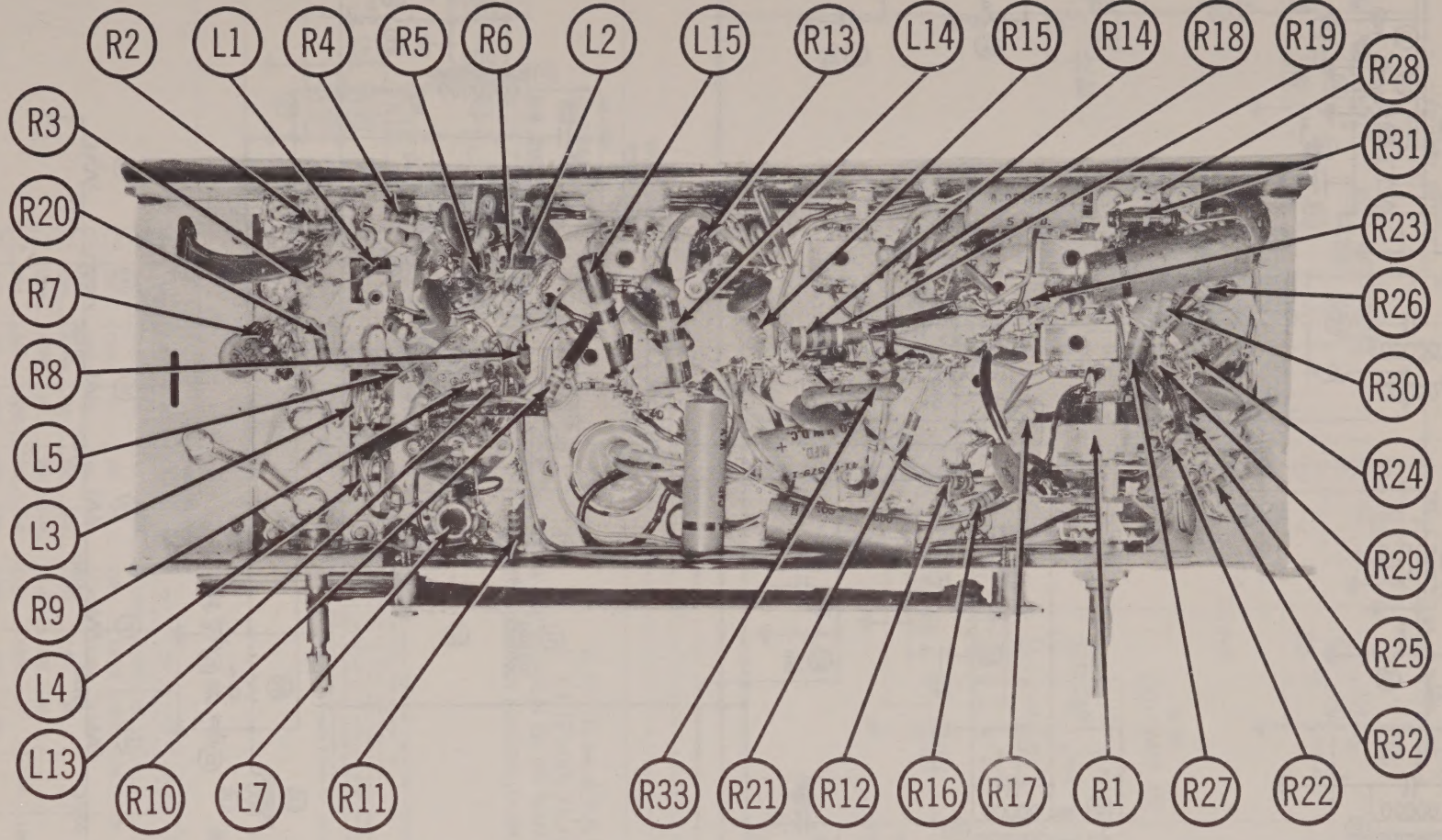


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

With the tuning gang fully closed set the dial pointer to the left edge of "55" and "88" on the dial.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to Pin 7 (grid) of 12BE6 (V3). Low side to chassis.	455KC (400∿Mod.)	AM	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	540KC	"	Tuning gang fully closed.	"	A6	Adjust for maximum output. Repeat step 2.
4.		"	1400KC	"	Tune to 1400KC signal	"	A7	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.
Attenuate generator output to maintain not more than 2 volts on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.1MFD	High side to Pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A11, A10, A9, A8, A12	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.1MFD	High side to Pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (450KC SWP)	FM	Point of non-interference	Vert. amp. to point Ⓐ. Low side to chassis.	A11, A10, A9, A8, A12	Disconnect stabilizing capacitor C3. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A13	Reconnect stabilizing capacitor C3. Adjust so that 10.7MC occurs at center of cross-over lines as in Fig. 2. SLIGHTLY retouch A12 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	Two 150Ω carbon resistors	Across FM antenna terminals with 150Ω in each lead.	87.6MC (400∿ Mod.)	FM	Tuning gang fully closed.	Across voice coil.	L4	Adjust for maximum output by compressing or expanding L4.
8.	"	"	108.4MC	"	Tuning gang fully open.	"	A14	Adjust for maximum output. Repeat steps 7 and 6.
9.	"	"	90MC	"	Tune to 90MC signal	"	L3	Adjust for maximum output by compressing or expanding L3.
10.	"	"	105MC	"	Tune to 105MC signal	"	A15	Adjust for maximum output. Repeat steps 9 and 10.

FIG. 1

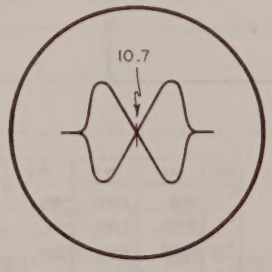


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BJ6	6BJ6	7CM	
V2	FM Mixer-Osc.	12AT7	12AT7	9A	
V3	AM Converter	12BE6	12BE6	7CH	
V4	1st FM AM IF Amp.	6BJ6	6BJ6	7CM	
V5	2nd FM IF Amp.	12AU6	12AU6	7BK	
V6	Ratio Detector-AM Det. AF Amp.	19T8	19T8	9E	
V7	Audio Output	50C5	50C5	7CV	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

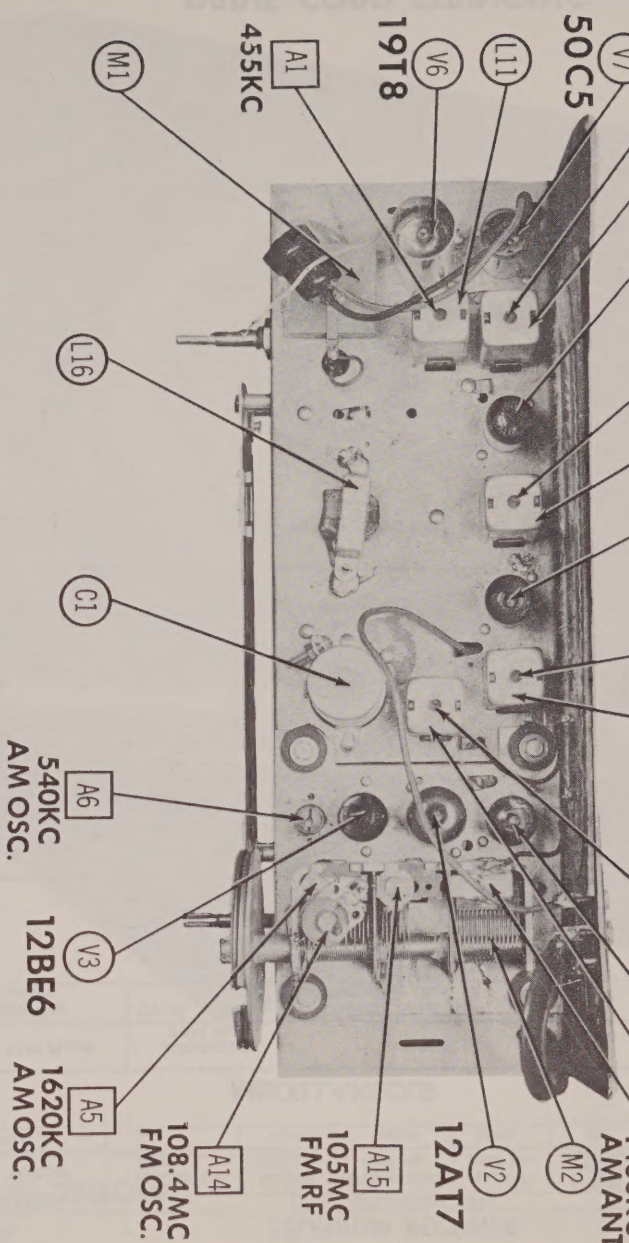
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	200	CE-1014C	AFH3-20					R1527	Red
B	40	200								Blue
C	20	200								Green
C2	5	50	CE-1009	PRS150/4		BR550		TC30	TVA-1303	
C3	2	50		PRS150/4		BBR2-50T		TC302	TVA-1301	
C4	10			SI10	D6-100	TP09	GP1K-100	UC-541	5GA-Q1	
C5	100			SI100 NP0	TCZ-101	TZ30	NP0K-101	ZT-531	5TCC-T1	
C6	100			SI100 NP0	TCZ-101	TZ30	NP0K-101	ZT-531	5TCC-T1	
C7	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C8	100			SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C9	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C10	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C11	1500			BPD-152	DD-152	K071	801-0015	DC-5215	5HK-D15	
C12	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C13	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C14	100			SI100NP0	TCZ-101	TZ30	NP0K-101	ZT-531	5TCC-T1	
C15	2									
C16	100			SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C17	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C18	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C19	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C20	1500			BPD-152	DD-152	K071	801-0015	DC-5215	5HK-D15	
C21	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C22	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C23	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C24	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C25	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C26	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C27	.03	600		P688-03		CUB6S3		PT613	6TM-S3	Note 1
C28	100			SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C29	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C30	390			SI390	D6-391	TP44	GP2L-391	UC-5339	5GA-T39	
C31	1500			BPD-0015	DD-152	K071	801-0015	DC-5215	5GA-D15	
C32	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C33	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C34	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C35	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C36A	100		♦PC-50	♦PA-97	♦PC-50	♦111TM1	1403-01	UC-531	♦100C1	
B	100							UC-531		
C37	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C38	.01	600		P688-01	D6-103	CUB6S1	GP2-333-103	PT611	6TM-S1	
C39	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C40	.1	400		P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C41	.03	600		689ZX-03		CUB6S3		PT613	6TM-S3	Note 1

Note 1. Some Models may use an .05MFD @ 400V in this application.
♦ Items C36A, C36B and R17 are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500KΩ	½	VC-40					Volume & band switch

CHASSIS—TOP VIEW



PROPERTY OF
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3924 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	AIRCASTLE PART No.	IRC PART No.	
R2	1000Ω	½		BTS-1000	
R3	100KΩ	½		BTS-100K	
R4	68Ω	½		BTS-68	
R5	200Ω 5%	½		BTS-200 5%	
R6	200Ω 5%	½		BTS-200 5%	
R7	10KΩ	½			
R8	1000Ω	½		BTS-1000	
R9	22KΩ 5%	½		BTS-22K 5%	
R10	470Ω	½		BTS-470	
R11	22KΩ 5%	½		BTS-22K	
R12	3. 3Meg	½		BTS-3. 3Meg	
R13	68Ω	½		BTS-68	
R14	470Ω	1		BTA-470	
R15	470Ω	½		BTS-470	
R16	2. 2Meg	½		BTS-2. 2Meg	
R17	470KΩ	½	♦ PC50	BTS-470K	
R18	470KΩ	½		BTS-470K	
R19	470Ω	½		BTS-470	
R20	1000Ω	½		BTS-1000	
R21	220KΩ	½		BTS-220K	
R22	1000Ω	½		BTS-1000	
R23	27KΩ	½		BTS-27K	
R24	22KΩ 5%	½		BTS-22K 5%	
R25	4. 7Meg	½		BTS-4. 7Meg	
R26	390KΩ	½		BTS-390K	
R27	150Ω	1		BTA-150	
R28	470KΩ	½		BTS-470K	
R29	5000Ω	½			Note 1
R30	1200Ω	½		BTS-1200	Note 1
R31	10KΩ	½			
R32	470Ω	1		BTA-470	
R33	22Ω	½			

Note 1. Some models may use a single 6800Ω resistor in this application.
♦ Items R17, C36A, C36B are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	AIRCASTLE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	2. 4KΩ	3. 1Ω		A-3332 ①	A-2928 ①	S-1X ①	Z1001 ①	24S50 ①	① Bend mounting tabs down. File out slots. Mount on original mounting bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	AIRCASTLE PART No.	VIKING PART No.	QUAM PART No.	
SP1	4" x 6"	PM	3. 1Ω	SP-49	46J6	46A1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	AIRCASTLE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM RF Choke	. 5Ω			19-1005		4612	10 Microhenries
L2	FM RF Choke	. 5Ω			19-1005		4612	10 Microhenries
L3	FM RF Coil	0Ω (tapped)		LC-29				
L4	FM Osc. Coil	0Ω						
L5	Cathode Choke	. 5Ω			19-1005		4612	10 Microhenries
L6	AM Loop Ant.	2. 5Ω						
L7	AM Osc. Coil	. 4Ω	6Ω	LC-32	14-1073		69-Osc.	
L8	1st FM IF	. 4Ω	. 6Ω	IF-51	16-3487	FM-254	1463	
L9	1st AM IF	8. 5Ω	8. 5Ω	LF-55	16-6758	BC-352	12-C1	
L10	2nd FM IF	. 6Ω	. 6Ω	LF-52	16-3487	FM-254	1463	
L11	2nd AM IF	8Ω	8Ω	LF-55	16-6758	BC-353	12-C2	
L12	Ratio Det.	1. 6Ω	. 9ΩCT	IF-53	V7-3487 †	FM-255	1465	Tertiary winding=. 4Ω
L13	Fil. Choke	. 5Ω			19-1005		4612	10 Microhenries
L14	Line Choke	6Ω			19-1004		4610	5. 5 Microhenries; IRC part # CL-1
L15	Line Choke	6Ω			19-1004		4610	5. 5 Microhenries; IRC part # CL-1

† Cut out chassis hole and drill mounting holes.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	AIRCASTLE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L16	. 075A	110Ω	1. 1HY						

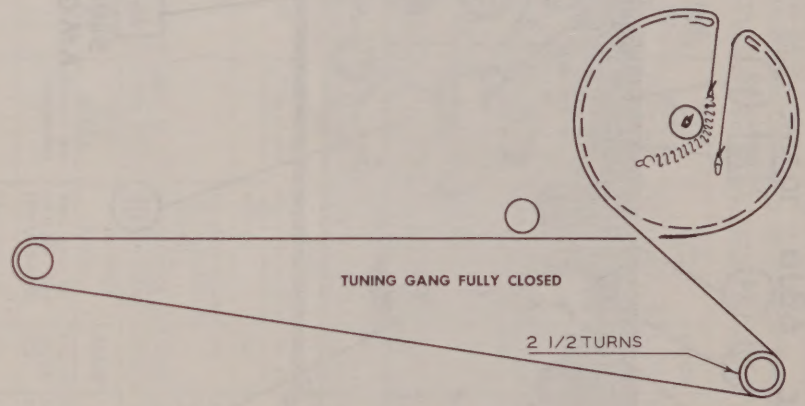
PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	AIRCASTLE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	SELETRON PART No.	
M1	. 075A		x1004A	RS100	6S100	100	5M1	

MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M2 A14	Tuning cap Trimmer	CV-24	(37-496MMF, 15-145MMF) 3-12MMF silver mica



DRIVE CORD STRINGING

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[illegible] ABE ST.
[illegible] COLORADO

ALLIANCE
MODEL AB-3 (VHF Booster)

LO-OFF-HI
SWITCH

ALLIANCE
MODEL AB-3 (VHF Booster)

TRADE NAME	Alliance Model AB-3
MANUFACTURER	Alliance Mfg. Co., Alliance, Ohio
TYPE SET	AC Operated Twelve Channel VHF Television Booster
TUBES (Two)	Types 6J6 Low Band RF Amp., 6J6 High Band RF Amp.
POWER SUPPLY	110-120 Volts AC RATING .1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

THIS UNIT HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. ALIGNMENT OF THIS UNIT SHOULD NOT BE REQUIRED IN THE FIELD.

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PARTS LIST AND DESCRIPTIONS

ALLIANCE MODEL AB-3

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		ALLIANCE PART No.	STANDARD REPLACEMENT		
V1	Low channel RF Amp.	6J6	6J6	7BF	
V2	High channel RF Amp.	6J6	6J6	7BF	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ALLIANCE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	30	150		PRS150/30		BR3015		TC47	TVA-1412	
C2	56			SI56NP0	TCZ-56	TZ24	NP0K-560			Note 1
C3	56			SI56NP0	TCZ-56	TZ24	NP0K-560			Note 1
C4	56			SI56NP0	TCZ-56	TZ24	NP0K-560			
C5	56									Note 2
C6	1.2						NP0K-1R2			
C7	1.2						NP0K-1R2			
C8	2.7						NP0K-2R7			
C9	1.2						NP0K-1R2			
C10	2.7						NP0K-2R7			
C11	.05	400								Note 2

Note 1. Some models may use a 1000MMF in this application.
Note 2. Not used in all models.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ALLIANCE PART No.	IRC PART No.	
R1	10KΩ	1/2		BTS-10K	
R2	47Ω	1/2		BTS-47	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ALLIANCE PART No.	IRC PART No.	
R3	47Ω	1/2		BTS-47	
R4	470Ω	1/2		BTS-470	

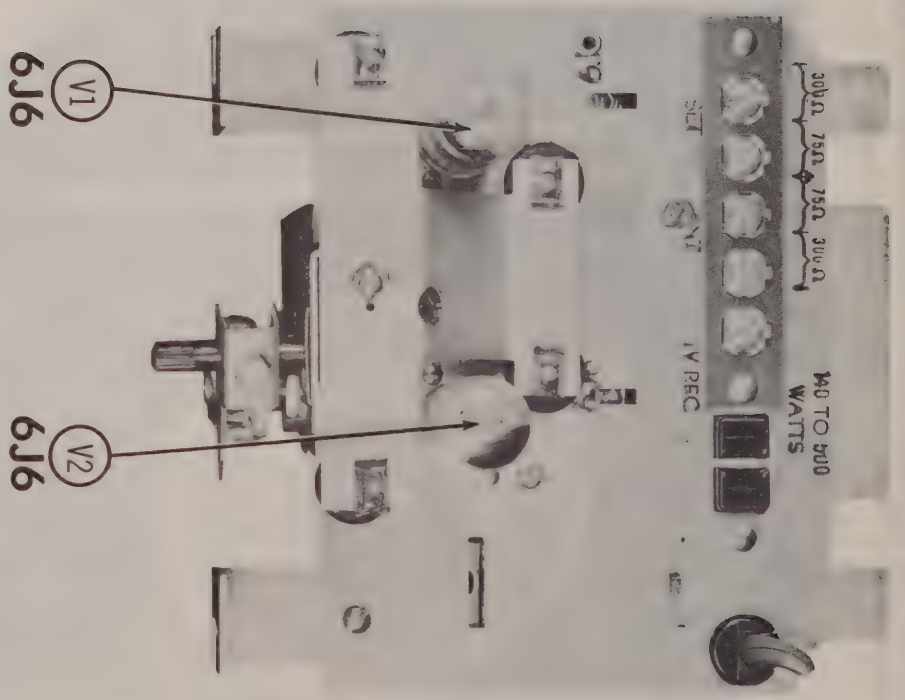
TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	ALLIANCE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @ .1A	132VAC .019ADC	6.3VAC @ .87A							

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ALLIANCE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Booster Ant. Coil	0Ω(tapped)						Low band
L2	Booster Ant. Coil	0Ω (tapped)						High band
L3	Booster Output Coil	0Ω(tapped)						Low band
L4	Booster Output Coil	0Ω (tapped)						High band

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	ALLIANCE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	SELETRON PART No.	
M1	.019A		1263A	CR-30 ①	8S20	35	8Y1	① Mounting difference

MISCELLANEOUS

ITEM No.	PART NAME	ALLIANCE PART No.	NOTES
M2 M3	Switch Relay		High-low-off Power

CHASSIS—BOTTOM VIEW

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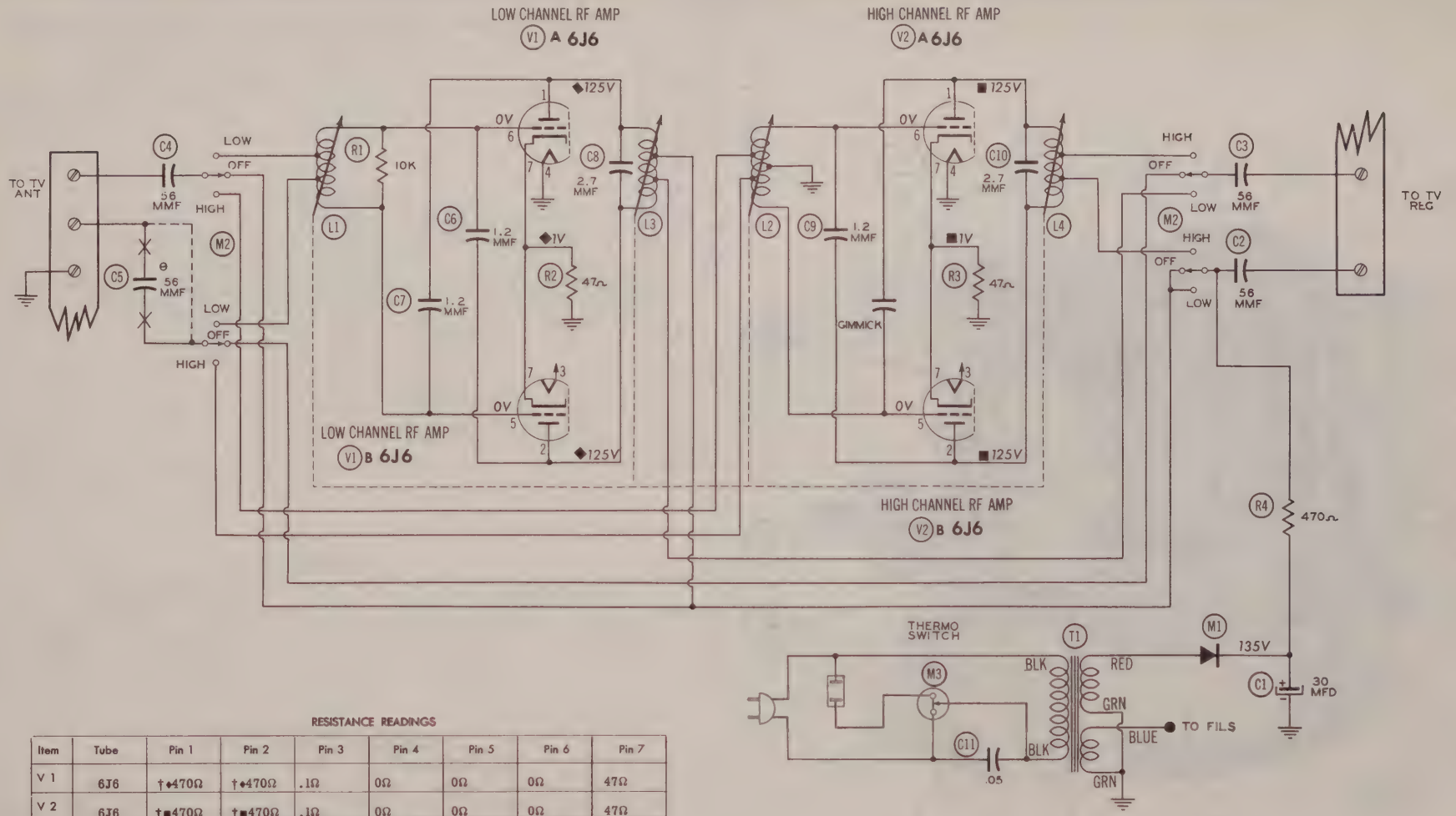
39[illegible] MEADE ST.
DENVER, COLORADO

ALLIANCE
MODEL AB-3



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6J6	†◆470Ω	†◆470Ω	.1Ω	0Ω	0Ω	0Ω	47Ω
V 2	6J6	†■470Ω	†■470Ω	.1Ω	0Ω	0Ω	0Ω	47Ω

◆ MEASURED ON LOW BAND
■ MEASURED ON HIGH BAND
† MEASURED FROM OUTPUT OF M1

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.

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PROPERTY OF
L. F. BLANKENSHIP
[illegible] ST.
[illegible] COLORADO

BLONDER-TONGUE
MODEL BTU-2 (UHF Conv)

UHF TUNING CONTROL

VHF UHF SELECTOR SWITCH

BLONDER-TONGUE
MODEL BTU-2 (UHF Conv)

TRADE NAME	Blonder-Tongue Model BTU-2
MANUFACTURER	Blonder-Tongue Laboratories, Inc., 526-536 North Ave., Westfield, N. J.
TYPE SET	AC operated All Channel UHF Converter
TUBES (Two)	Types 6T4 UHF Osc., 6AB4 IF Amp.
POWER SUPPLY	110-120 Volts AC RATING .1 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 14 thru 83

ALIGNMENT OF THE UHF CONVERTER IS NOT RECOMMENDED IN THE FIELD. IF ALIGNMENT BECOMES NECESSARY, THE ENTIRE UNIT SHOULD BE RETURNED TO THE FACTORY.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

BLONDER-TONGUE MODEL BTU-2

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: Blonder-Tongue PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	UHF Oscillator	6T4	6T4	7DK	
V2	IF Amplifier	6AB4	6AB4	5CE	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Blonder-Tongue PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	30	150		PRS150/50-30		BBRD5315		2N520	TVA-2450	Red
B	50	150								
C2	.82									
C3	.82									
C4	2.2			SI2.2NP0	TCZ-2.2		NP0K-2R2		5TCCB-V22	
C5	1			SIINP0	TCZ-1	TZ03	NP0K-010		5TCCB-V1	
C6	68			SI68	D6-680	TP32	GP1K-680	UC-5468	5GA-Q68	
C7	68			SI68	D6-680	TP32	GP1K-680	UC-5468	5GA-Q68	
C8	3.3			SI3.3NP0	TCZ-3.3	TZ06	NP0K-3R3	ZT-5533	5TCCB-V33	
C9	330			SI330	D6-331	TP43	GP2K-331	UC-5333	5GA-T33	
C10	1.5			SI1.5NP0	TCZ-1.5	TZ04	NP0K-1R5	ZT-5515	5TCCB-V15	
C11	.47									
C12	22			SI22	D6-220	TP22	GP1K-220	UC-5422	5GA-Q22	

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Blonder-Tongue PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R1	22Ω	½		BTS-22	
R2	22Ω	½		BTS-22	
R3	10Ω	½		BTS-10	
R4	15KΩ	½		BTS-15K	
R5	330KΩ	½		BTS-330K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Blonder-Tongue PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R6	100KΩ	½		BTS-100K	
R7	270Ω	½		BTS-270	
R8	4700Ω	½		BTS-4700	
R9	820Ω	1		BTA-820	
R10	33KΩ	½		BTS-33K	

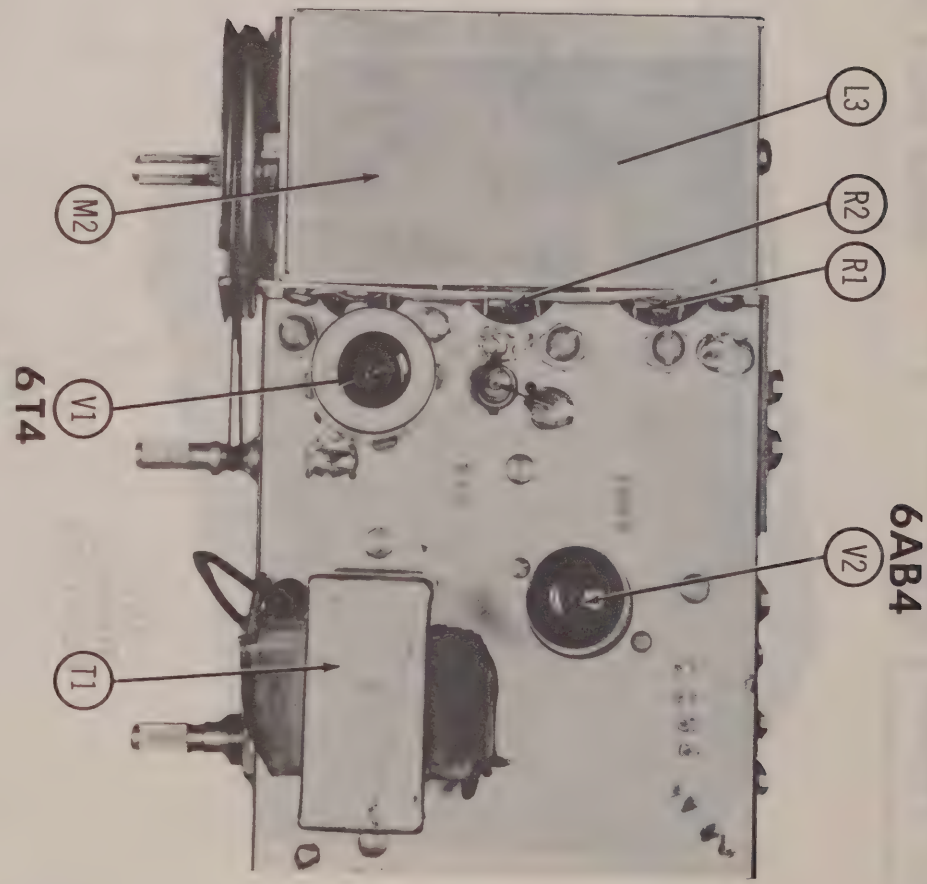
TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Blonder-Tongue PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @ .1A	107VAC .027ADC	6.3VAC @ .37A							

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: Blonder-Tongue PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	UHF Ant. Coil	0Ω						
L2	UHF Ant. Coil	0Ω						
L3A	UHF Ant. Coil	0Ω						
B	UHF Mixer Coil	0Ω						
C	UHF Osc. Coil	0Ω						
L4	UHF Ant. Coil End inductor	0Ω						
L5	UHF Ant. Coil End inductor	0Ω						
L6	UHF Mixer Coil End inductor	0Ω						
L7	UHF Mixer Coil End inductor	0Ω						
L8	UHF Osc. Coil							

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

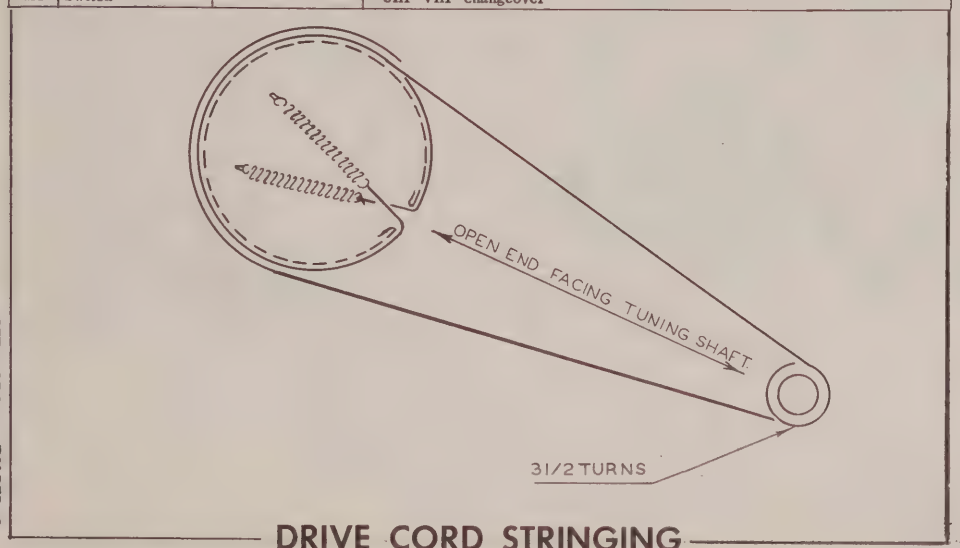
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: Blonder-Tongue PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
	Ebd inductor	0Ω						
L9	UHF Osc. Coil							
	End inductor	0Ω						
L10	Fil. Choke	0Ω						
L11	Fil. Choke	0Ω						
L12	Fil. Choke	0Ω						
L13	UHF IF Coupling	0Ω						
L14	UHF IF Coupling	0Ω						
L15	Feedback Coil	0ΩCT						
L16	UHF IF Output Coil Primary	0Ω						
L17	UHF IF Output Coil Secondary	0ΩCT						
L18	UHF IF Output Coil Secondary shunt	0Ω						

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA: Blonder-Tongue PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	SELETRON PART No.	NOTES
M1	.027A		1214A	CR30 ①	6S35	35	8Y1	① Mounting Difference

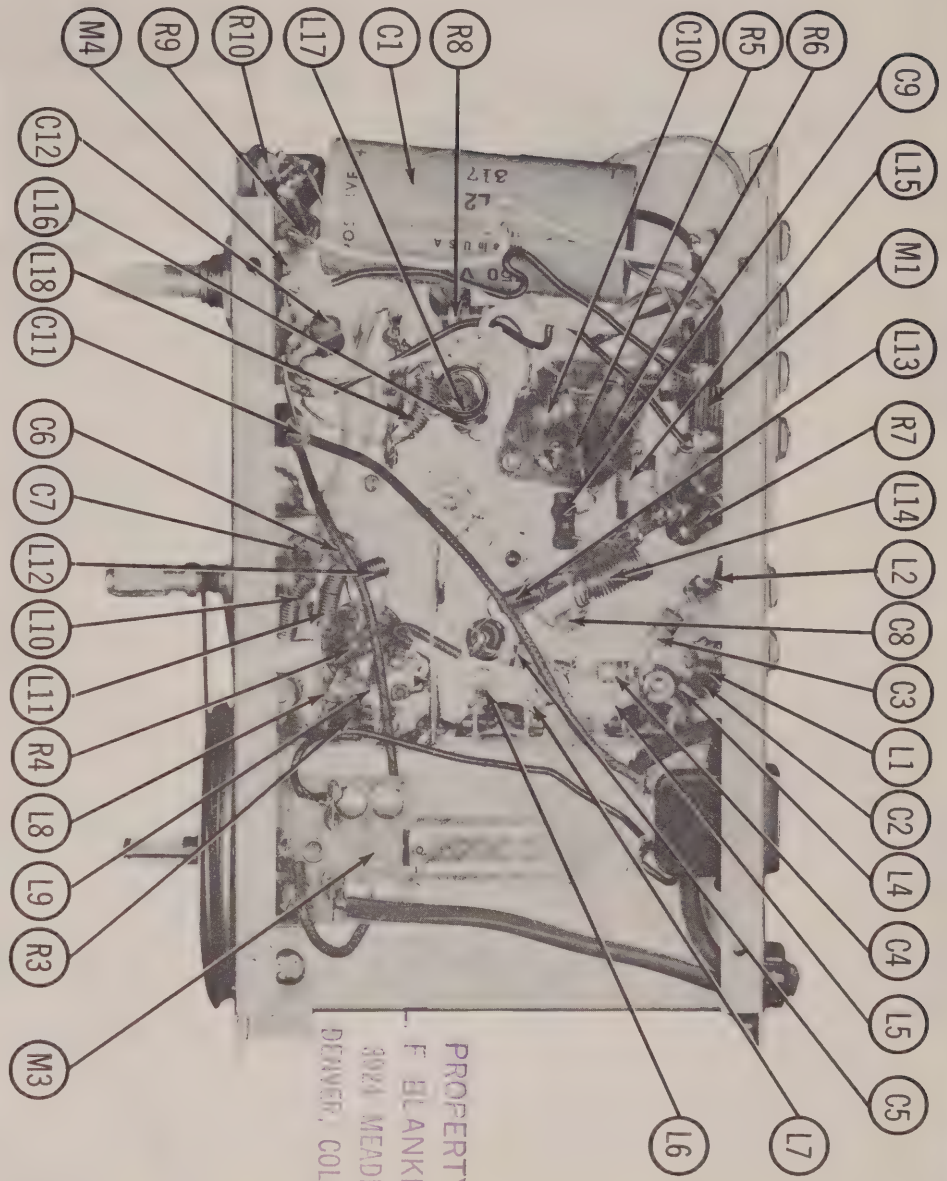
MISCELLANEOUS

ITEM No.	PART NAME	Blonder-Tongue PART No.	NOTES
M2	Tuner		Assembly
M3	Switch		Thermal relay
M4	Switch		UHF-VHF changeover



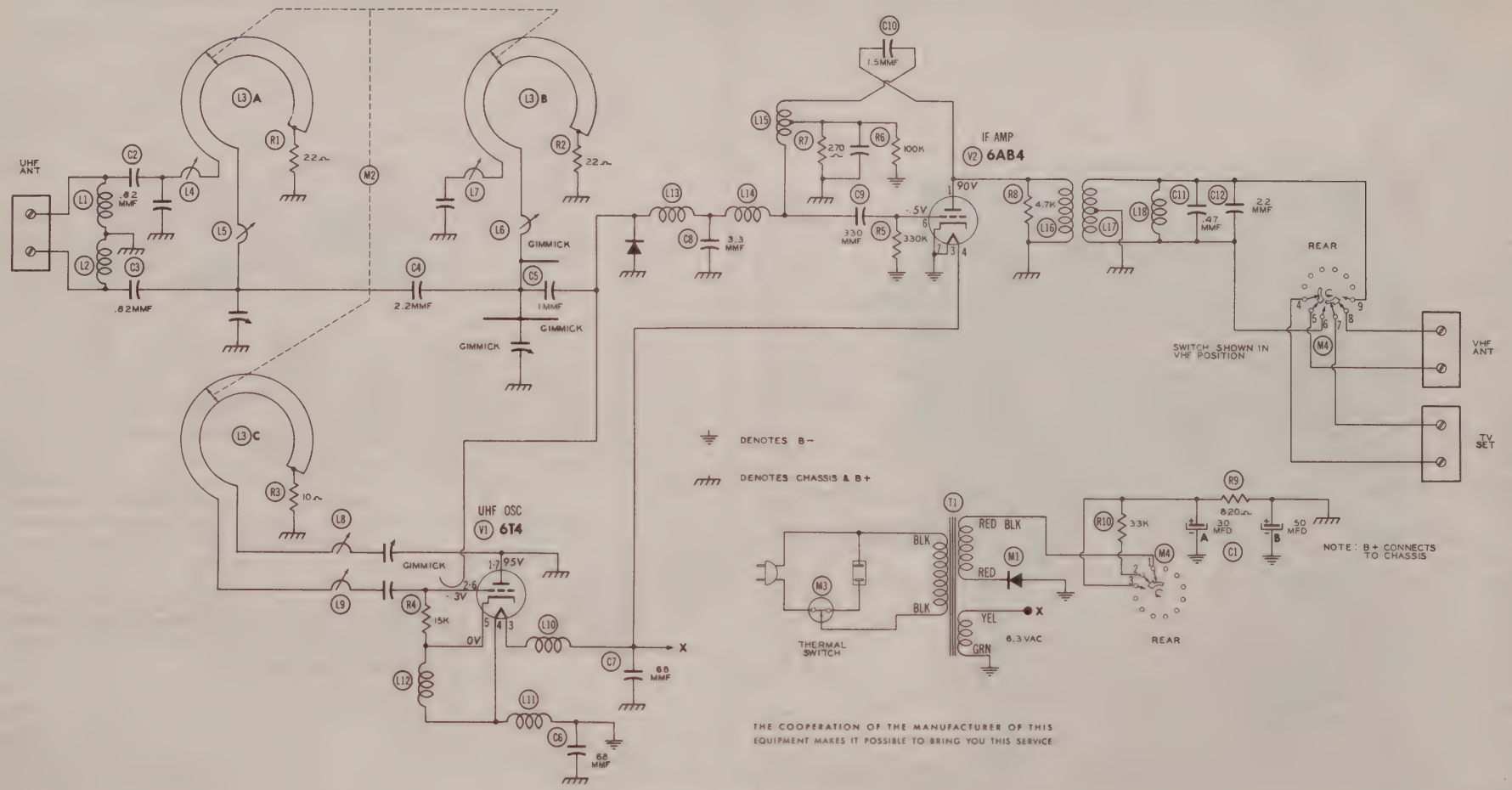
DRIVE CORD STRINGING

CHASSIS—BOTTOM VIEW



PROPERTY OF
F. BLANKENSHIP
3021 MEADE ST.
DENVER, COLORADO

BLONDER-TONGUE
MODEL BTU-2



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6T4	† 1KΩ	15KΩ	.1Ω	0Ω	0Ω	15KΩ	† 1KΩ
V 2	6AB4	† 5.7KΩ	0Ω	0Ω	.1Ω	INF	330KΩ	0Ω

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.

VOLTAGES MEASURED IN UHF POSITION WITH VTVM
† MEASURED FROM OUTPUT OF M1.

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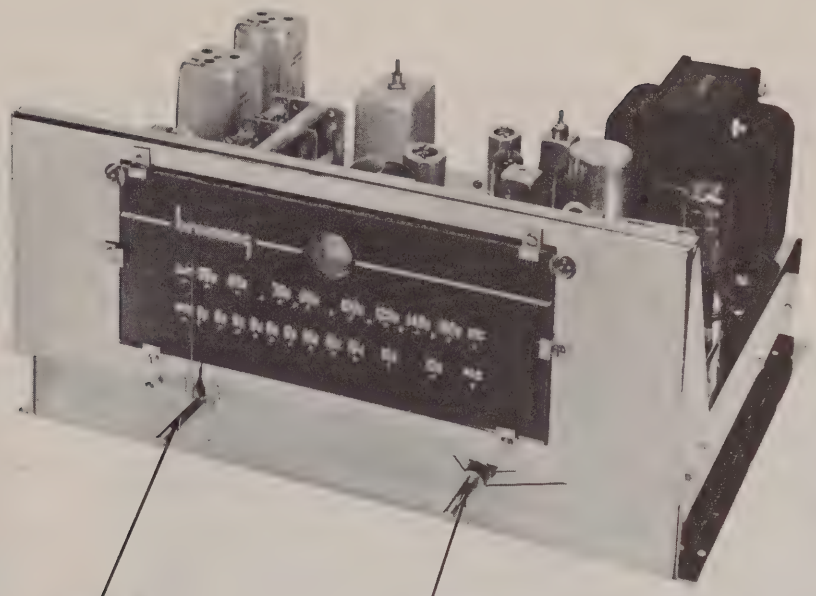
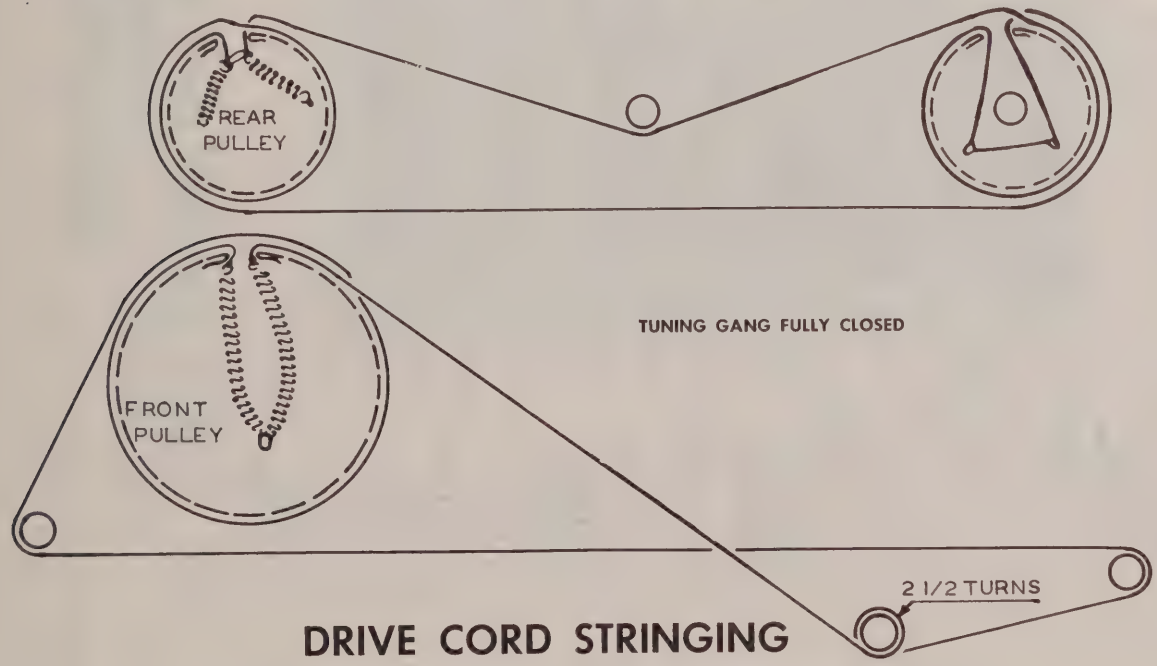
BROWNING
MODEL RJ-42



BROWNING
MODEL RJ-42

TRADE NAME	Browning Model RJ-42		
MANUFACTURER	Browning Laboratories, Inc., Winchester, Mass.		
TYPE SET	AC Operated AM-FM Superheterodyne Tuner for Custom Installation		
TUBES	Fifteen		
POWER SUPPLY	110-120 Volts AC- 50/60 Cycles	RATING	.74 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST	500-1700KC	FREQ. MOD.	88-108MC



DRIVE CORD STRINGING

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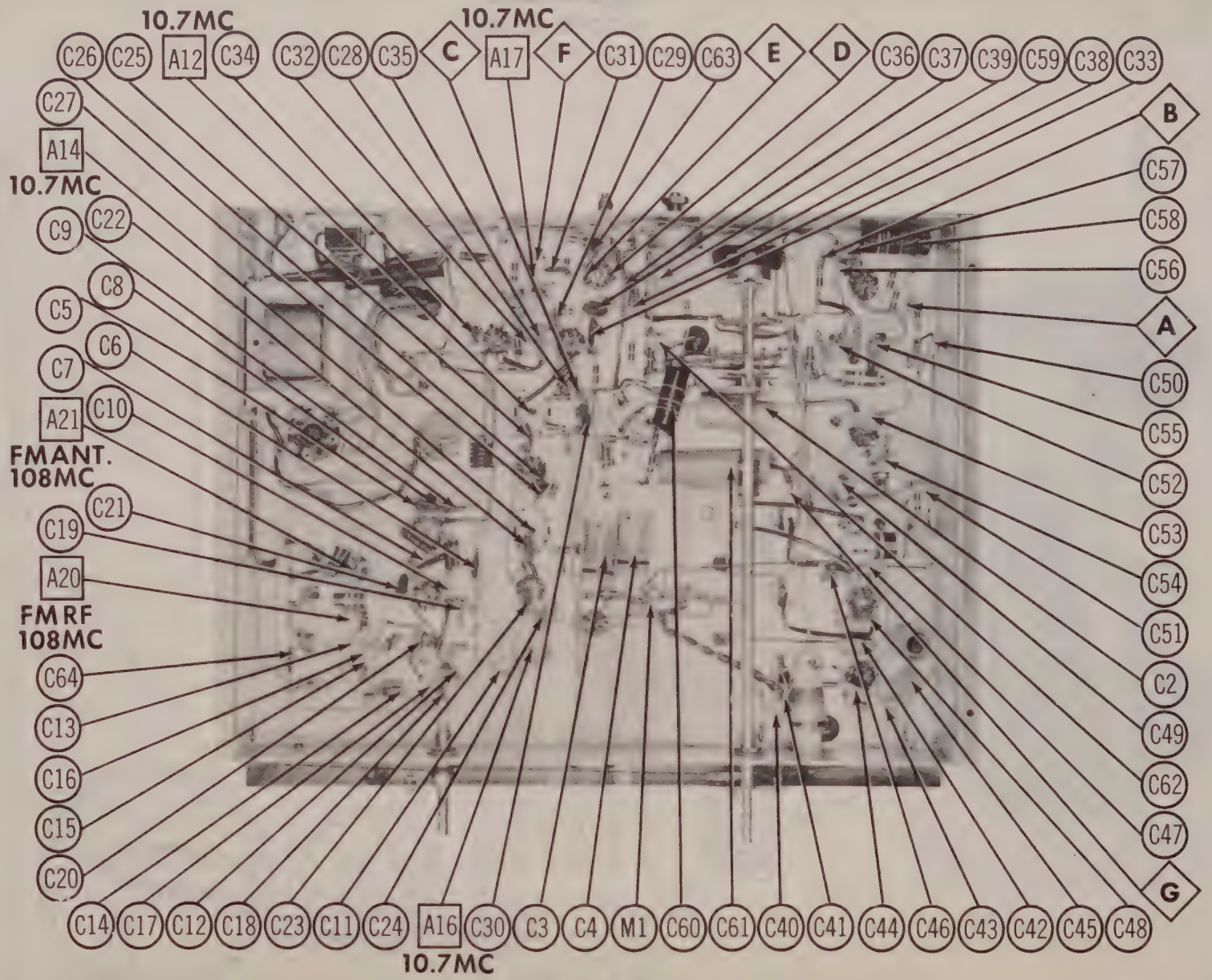
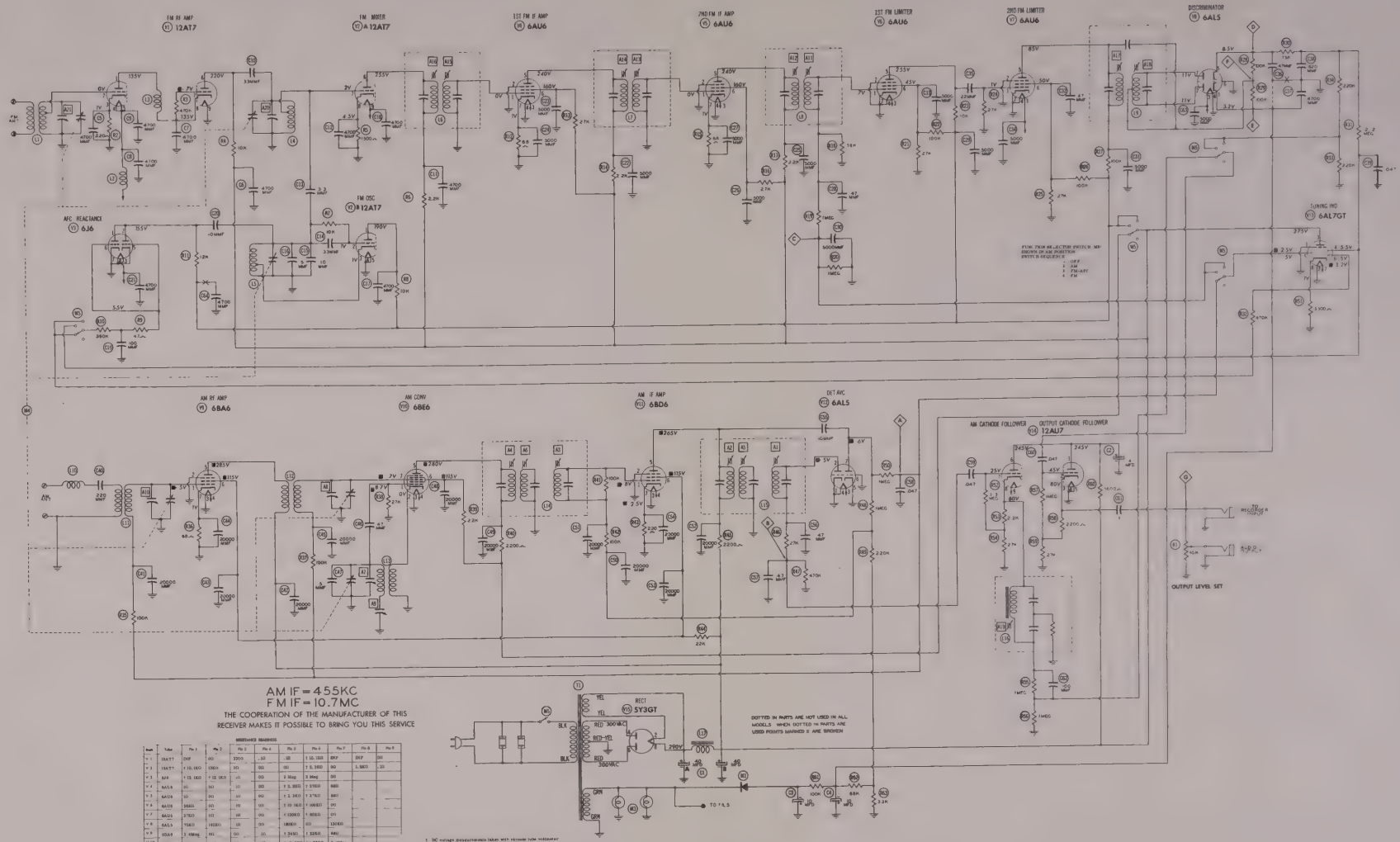


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION


FM RF AMP V1 12AT7
FM MIXER V2 A 12AT7
1ST FM IF AMP V4 6AU6
2ND FM IF AMP V5 6AU6
1ST FM LIMITER V6 6AU6
2ND FM LIMITER V7 6AU6
DISCRIMINATOR V8 6AL5
AFC REACTANCE V3 6J6
FM OSC V2 12AT7
TUNING IND V11 6AL7GT
AM RF AMP V9 6BA6
AM CONV V10 6BE6
AM IF AMP V11 6BD6
DET AVC V12 6AL5
AM CATHODE FOLLOWER OUTPUT CATHODE FOLLOWER V14 12AU7
RECT V15 5Y3GT
OUTPUT LEVEL SET
AM IF = 455KC
FM IF = 10.7MC
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
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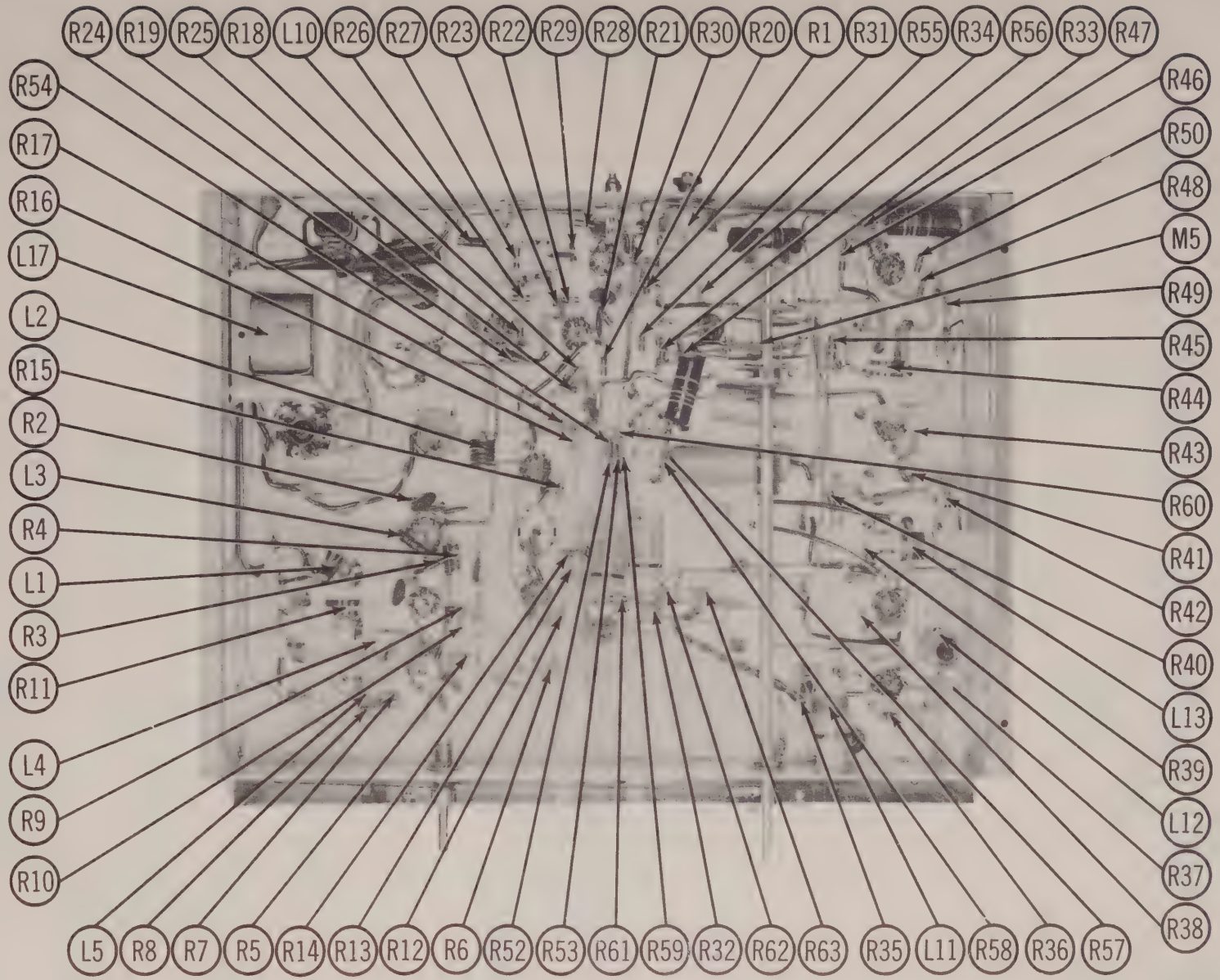

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
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3924 UTICA ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Output of signal generator should be no higher than necessary to obtain a usable indication on VTVM or scope.
Use an insulated alignment screwdriver for adjusting.

AM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to RF stator lug on tuning gang (middle section). Low side to chassis.	455KC (Unmod)	AM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6	Attenuate generator output to maintain less than -5 volts at VTVM. Adjust in order given for maximum deflection. Vary generator frequency to 453KC and 457KC and note meter deflection at both points. If meter deflection is not approximately the same at both points retouch A1 thru A6 until this condition is obtained.

AM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 30KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to RF stator lug on tuning gang (middle section). Low side to chassis.	455KC (30KC Swp)	AM	Tuning gang fully open	Vert. Amp. to point (B). Low side to chassis.	A1, A2, A3, A4, A5, A6	Adjust for response similar to Fig. 1.

10KC WHISTLE FILTER ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
2.	.01MFD	High side to RF stator lug on tuning gang (middle section). Low side to chassis.	455KC (10KC Mod)	AM	Tuning gang fully open	DC probe to point G. Common to chassis.	A19	Adjust for MINIMUM deflection.

AM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	Direct	High side to AM antenna terminal. Low side to chassis.	1300KC	AM	1300KC	DC probe to point (A). Common to chassis.	A7	Adjust for maximum deflection.
4.	"	"	1500KC	"	1500KC	"	A8	"
5.	"	"	600KC	"	600KC	"	A9	Adjust for maximum deflection while rocking tuning gang thru 600KC signal. Repeat steps 3 and 4.
6.	Use original antenna system	Not used	Not used	"	See Remarks	"	A10	Tune in a station near 1500KC or 1600KC and adjust A8 for maximum deflection.

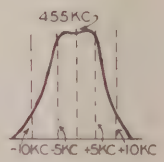


FIG. 1

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	.01MFD	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (Unmod)	FM (AFC off)	Point of non-interference	DC probe to point (C). Common to chassis.	A11 A12 A13 A14 A15 A16	Adjust for maximum deflection. Vary the generator frequency in 25KC steps to 75KC above and below 10.7MC. The meter deflections should be nearly equal above and below 10.7MC. If necessary, retouch A11 thru A16 until nearly equal meter deflections above and below 10.7MC are obtained.
8.	"	"	"	"	"	DC probe to point (D). Common to point (E).	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
9.	"	"	"	"	"	DC probe to point (F). Common to point (E).	A17	Adjust for maximum deflection. Repeat steps 8 and 9 until maximum deflection occurs at point F and zero reading occurs at point D.

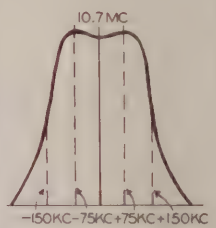


FIG. 2

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% mdoulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to pin 7 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM (AFC off)	Point of non-interference	Vert. Amp. to point (F). Low side to point E.	A11, A12, A13, A14 A15, A16 A17	Adjust for curve of maximum amplitude and symmetry with band pass as shown in Fig. 2.
8.	"	"	"	"	"	Vert. Amp. to point (D). Low side to point (E).	A18	Adjust so that 10.7MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A17 for maximum amplitude and straightness of crossover lines. The linear portion of the crossover lines should extend for 150KC on either side of the 10.7MC marker as shown in Fig. 3. Continue alignment with step 10.

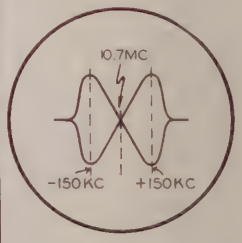


FIG. 3

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across FM antenna terminals with 120Ω in each lead.	108MC (Unmod)	FM	108MC	DC probe to point (G). Common to chassis.	L5	Adjust for maximum deflection by compressing or expanding L5.
11.	"	"	88MC	"	88MC	"		SLIGHTLY spread or compress FM oscillator rotor plates (section nearest front panel) for maximum deflection.
12.	"	"	108MC	"	108MC	"	A20	Adjust for maximum deflection. Repeat steps 10 and 12 until maximum deflection is obtained at 108MC.
13.	"	"	88MC	"	88MC	"		Insert brass end of tuning wand in L4. If meter deflection increases spread the oscillator rotor plates VERY SLIGHTLY. Insert iron end of tuning wand in L4. If meter deflection increases compress oscillator rotor plates VERY SLIGHTLY. Repeat process in small steps until maximum deflection occurs at 88MC.
14.	"	"	108MC	"	108MC	"	A21	Adjust for maximum deflection.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

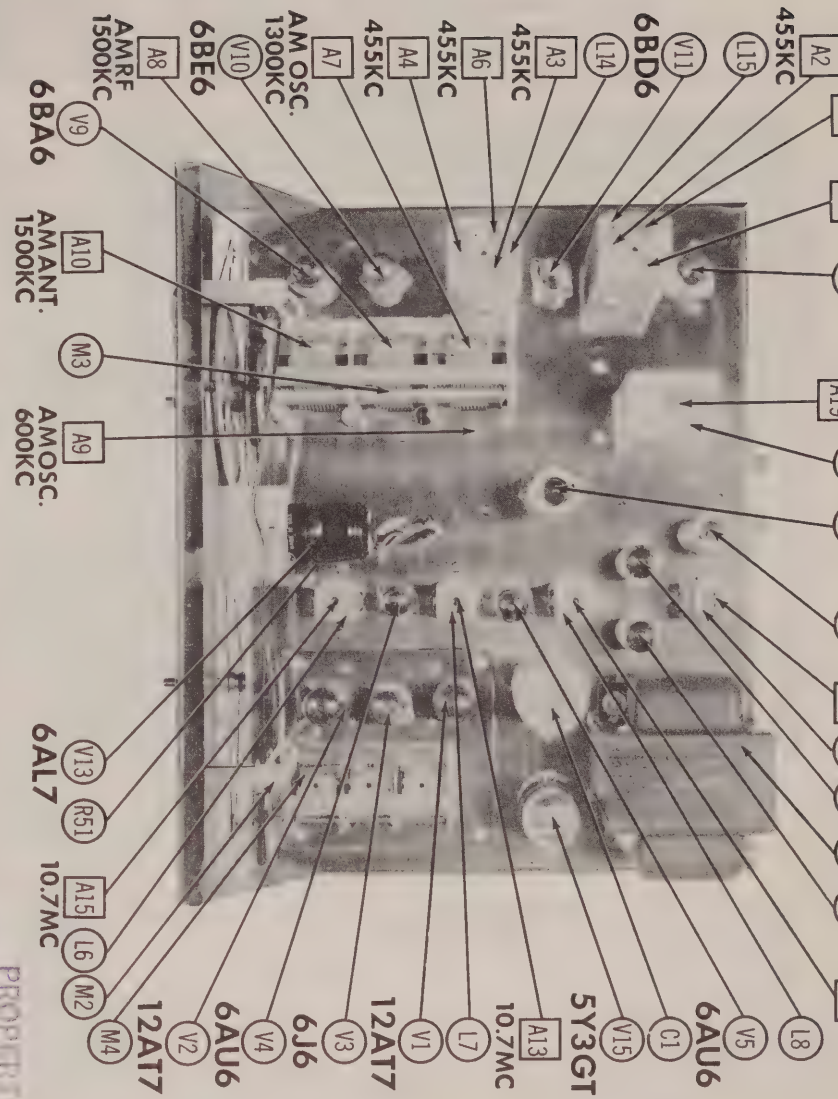
ITEM No.	USE	REPLACEMENT DATA: BROWNING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	FM RF Amplifier	12AT7	12AT7	9A	
V2	FM Mixer & Osc.	12AT7	12AT7	9A	
V3	AFC Reactance	6J6	6J6	7BF	
V4	1st FM IF Amp.	6AU6	6AU6	7BK	
V5	2nd FM IF Amp.	6AU6	6AU6	7BK	
V6	1st FM Limiter	6AU6	6AU6	7BK	
V7	2nd FM Limiter	6AU6	6AU6	7BK	
V8	Discriminator	6AL5	6AL5	6BT	
V9	AM RF Amplifier	6BA6	6BA6	7BK	
V10	AM Converter	6BE6	6BE6	7CH	
V11	AM IF Amplifier	6BD6	6BD6	7BK	
V12	Det. AVC	6AL5	6AL5	6BT	
V13	Tuning Eye	6AL7GT	6AL7GT	8BD	
V14	AM Cath. Follower-Output Cath. Follower	12AU7	12AU7	9A	
V15	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BROWNING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450		AFH2-57		B045		FP238	TVL-2764	
B	■40	450								
C2	4	450		PRS150/4		BR415		TC40	TVA-1402	
C3	10	25		PRS25/10		BR102		TC22	TVA-1204	
C4	10	25		PRS25/10		BR102		TC22	TVA-1204	
C5	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C6	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C7	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C8	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C9	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C10	33	500				22R5Q33			MS-43	
C11	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C12	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C13	3.3			SI3.3NP0	TCZ-3.3	TZ06	NP0K-3R3	ZT-5533	5TCCB-V33	
C14	33	500				22R5Q33			MS-33	
C15	10									
C16	5									
C17	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C18	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C19	100	500		1469-0001		22R5T1		MCE235	MS-31	
C20	10	500		1469-000 01		22R5Q1		MCE215	MS-41	
C21	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C22	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C23	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C24	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C25	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C26	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C27	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C28	47	500		1469-00005		22R5Q47		MCE225	MS-45	
C29	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C30	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C31	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C32	47	500		1469-00005		22R5Q47		MCE225	MS-45	
C33	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C34	5000			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C35	22	500		1469-000025		22R5Q22		MCE220	MS-42	
C36	47	500		1469-00005		22R5Q47		MCE225	MS-45	
C37	4700			BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C38	620	500								
C39	.047	200		P288-047	DF-503	PJ2S47		PT4027	2TM-S47	
C40	220	500		1469-00025		22R5T22		MCE237	MS-32	
C41	20000			BPD-02	DD-203	K085			5HK-S2	
C42	20000			BPD-02	DD-203	K085			5HK-S2	
C43	20000			BPD-02	DD-203	K085			5HK-S2	
C44	20000			BPD-02	DD-203	K085			5HK-S2	
C45	20000			BPD-02	DD-203	K085			5HK-S2	

CHASSIS—TOP VIEW



PROPERTY OF
L. F. RADIO SHOP

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA BROWNING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C46	47	500		1469-00005		22R5Q47		MCE225	MS-45	
C47	5	500		1469-000005		22R5V5		MCE205	MS-55	
C48	20000			BPD-02	DD-203	K085			5HK-S2	
C49	20000			BPD-02	DD-203	K085			5HK-S2	
C50	20000			BPD-02	DD-203	K085			5HK-S2	
C51	20000			BPD-02	DD-203	K085			5HK-S2	
C52	20000			BPD-02	DD-203	K085			5HK-S2	
C53	20000			BPD-02	DD-203	K085			5HK-S2	
C54	20000			BPD-02	DD-203	K085			5HK-S2	
C55	10	500		1469-00001		22R5Q1		MCE215	MS-41	
C56	47	500		1469-00005		22R5Q47		MCE225	MS-45	
C57	47	500		1469-00005		22R5Q47		MCE225	MS-45	
C58	.047	600		P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C59	.047	600		P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C60	.047	600		P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C61	1.0	200								
C62	100	500		1469-0001		22R5T1		MCE235	MS-31	
C63	5000			BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C64	4700			BPD-0047	DD-502	K079	811-0047	DC-525	5HK-D47	Note 1

Note 1. Not used in all Models.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA BROWNING PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	10KΩ	½	SX1931	Q11-116	A47-10K-S	AB-14	SU-20	Output level set
B	Shaft		Not Req.	SQ	FKS-1/4	AK-1	Not Req.	Attach to R1A

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA BROWNING PART No.	IRC PART No.	NOTES
R2	220Ω	½		BTS-220	
R3	470KΩ	½		BTS-470K	
R4	10KΩ	1		BTA-10K	
R5	1500Ω	½		BTS-1500	
R6	2200Ω	½		BTS-2200	
R7	10KΩ	½		BTS-10K	
R8	10KΩ	1		BTA-10K	
R9	47Ω	½		BTS-47	
R10	390KΩ	½		BTS-390K	
R11	12KΩ	2		BTB-12K	
R12	68Ω	½		BTS-68	
R13	27KΩ	½		BTS-27K	
R14	2200Ω	½		BTS-2200	
R15	68Ω	½		BTS-68	
R16	27KΩ	½		BTS-27K	
R17	2200Ω	½		BTS-2200	
R188	56KΩ	½		BTS-56K	
R19	1 Meg	½		BTS-1 Meg	
R20	1 Meg	½		BTS-1 Meg	
R21	27KΩ	½		BTS-27K	
R22	100KΩ	½		BTS-100K	
R23	10KΩ	½		BTS-10K	
R24	27KΩ	½		BTS-27K	
R25	27KΩ	½		BTS-27K	
R26	100KΩ	½		BTS-100K	
R27	100KΩ	½		BTS-100K	
R28	100KΩ	½		BTS-100K	
R29	100KΩ	½		BTS-100K	
R30	75KΩ 5%	½		BTS-75K 5%	
R31	2.2Meg	½		BTS-2.2Meg	
R32	470KΩ	½		BTS-470K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA BROWNING PART No.	IRC PART No.	NOTES
R33	220KΩ	½		BTS-220K	
R34	220KΩ	½		BTS-220K	
R35	100KΩ	½		BTS-100K	
R36	68Ω	½		BTS-68	
R37	100KΩ	½		BTS-100K	
R38	27KΩ	½		BTS-27K	
R39	22KΩ	½		BTB-22K	Note 1
R40	2200Ω	½		BTS-2200	
R41	100KΩ	½		BTS-100K	
R42	100KΩ	½		BTS-100K	
R43	220Ω	½		BTS-220	Note 2
R44	22KΩ	2		BTB-22K	
R45	2200Ω	½		BTS-2200	
R46	27KΩ	½		BTS-27K	
R47	470KΩ	½		BTS-470K	
R48	1 Meg	½		BTS-1 Meg	
R49	220KΩ	½		BTS-220K	
R50	1 Meg	½		BTS-1 Meg	
R51	3300Ω	½		BTS-3300	
R52	3.3Meg	½		BTS-3.3Meg	
R53	2200Ω	½		BTS-2200	
R54	27KΩ	½		BTS-27K	
R55	1 Meg	½		BTS-1 Meg	
R56	1 Meg	½		BTS-1 Meg	
R57	1 Meg	½		BTS-1 Meg	
R58	2200Ω	½		BTS-2200	
R59	27KΩ	½		BTS-27K	
R60	5600Ω	½		BTS-5600	
R61	100KΩ	½		BTS-100K	
R62	68KΩ	½		BTS-68K	
R63	33KΩ	½		BTS-33K	

Note 1. Some models may use a 2200Ω resistor in this application.
Note 2. Some models may use a 240Ω resistor in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA BROWNING PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC	560VCT	5VAC	6.3VAC				R-12A①②	P9312①②	22R05①②
	ⓐ .74A	.086A	ⓐ 2A	ⓐ 4.4A						

① Drill new mounting holes.
② Tape 6.3V center tap.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA BROWNING PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	0Ω	0Ω (tapped)					
L2	Fil. Choke	0Ω						Not used in all models
L3	Neutr. Coil	.2Ω			19-1000	TV-189	4602	1 Microhenry
L4	FM RF Coil	0Ω (tapped)						
L5	FM Osc. Coil	0Ω (tapped)						
L6	1st FM IF	1.2Ω	1.2Ω	16486-1	16-3487	FM-254	1463	
L7	2nd FM IF	1.2Ω	1.2Ω	16486-1	16-3487	FM-254	1463	
L8	3rd FM IF	1.2Ω	1.2Ω	16486-1	16-3487	FM-254	1463	
L9	FM Discrim.	1.2Ω	1.3ΩCT	15808	17-3484 †	FM-253	1464	
L10	AM Ant. Loading Coil	.6Ω			19-1003		4608	5 Microhenries
L11	AM Ant. Coil	5Ω	4Ω		14-1056	BC-380	72-A	
L12	AM RF Coil	90Ω	3.7Ω		14-1023	BC-413	43-RF	
L13	AM Osc. Coil	.8Ω	9.5Ω		14-4034	BC-397	5480-C	
L14	1st AM IF	17Ω	17Ω	14487				
L15	2nd AM IF	17Ω	17Ω	14488				
L16	10KC Filter	110Ω					EL-60 *	

† Cut out chassis hole and drill mounting hole.
* Drill new mounting holes.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA BROWNING PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L17	.086A	154Ω	4.35HY		C-1709		C-9X		20C64 ①

① Drill one new mounting hole.

CRYSTAL DIODES

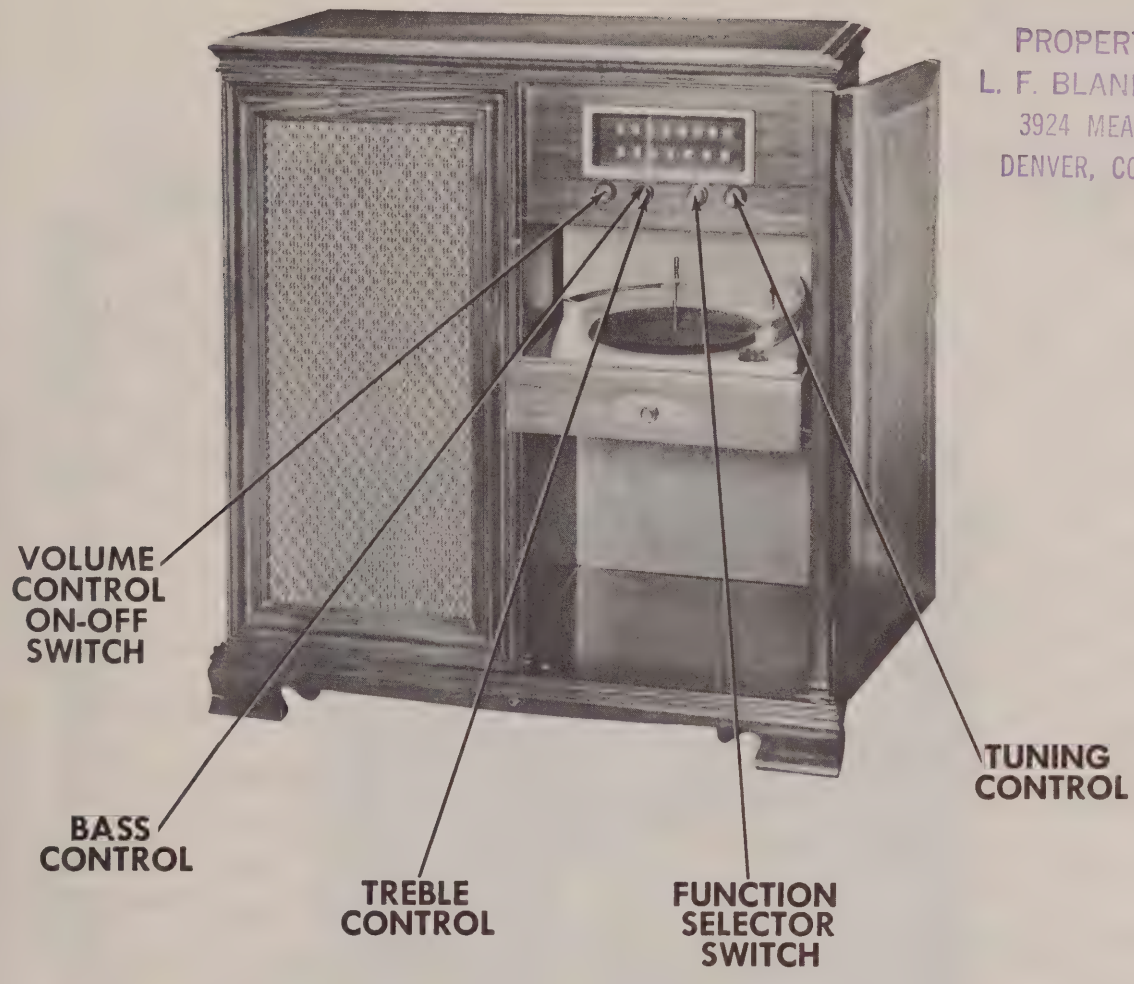
ITEM No.	ORIG. TYPE	REPLACEMENT DATA BROWNING PART No.	SYLVANIA PART No.	FEDERAL PART No.	NOTES
M1	1N54A		1N54A	1N54A	Bias rectifier

MISCELLANEOUS

ITEM No.	PART NAME	BROWNING PART No.	NOTES
M2	Dial light		# 47 bayonet-2 used
M3	Tuning cap		AM-(31-400MMF) (22-385MMF) (32-395MMF)
M4	Tuning cap		FM- 3 section
M5	Switch		Off-on function
A9	Trimmer cap	303-M	AM osc. coil padder

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CAPEHART MODELS RP-154B, M, 11RP-125F (Ch. CR-129 & CA-135)



CAPEHART MODELS RP-154B, M, 11RP-125F (Ch. CR-129 & CA-135)

TRADE NAME	Capehart Models RP-154B, M, 11RP-125F (Ch. CR-129 & CA-135)	
MANUFACTURER	Capehart-Farnsworth Co., Ft. Wayne, Ind.	
TYPE SET	AC Operated AM-FM Superheterodyne Receiver With 3 Speed Automatic Record Changer	
TUBES	Twelve	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING .77 Amp. @ 117 Volts AC
TUNING RANGE - BROADCAST		FREQ. MOD. 88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT MODEL 400HF - SEE SIMILAR V-M MODEL 951, PHOTOFACT SET 216-FOLDER 11 OR RECORD CHANGER MANUAL CM-5.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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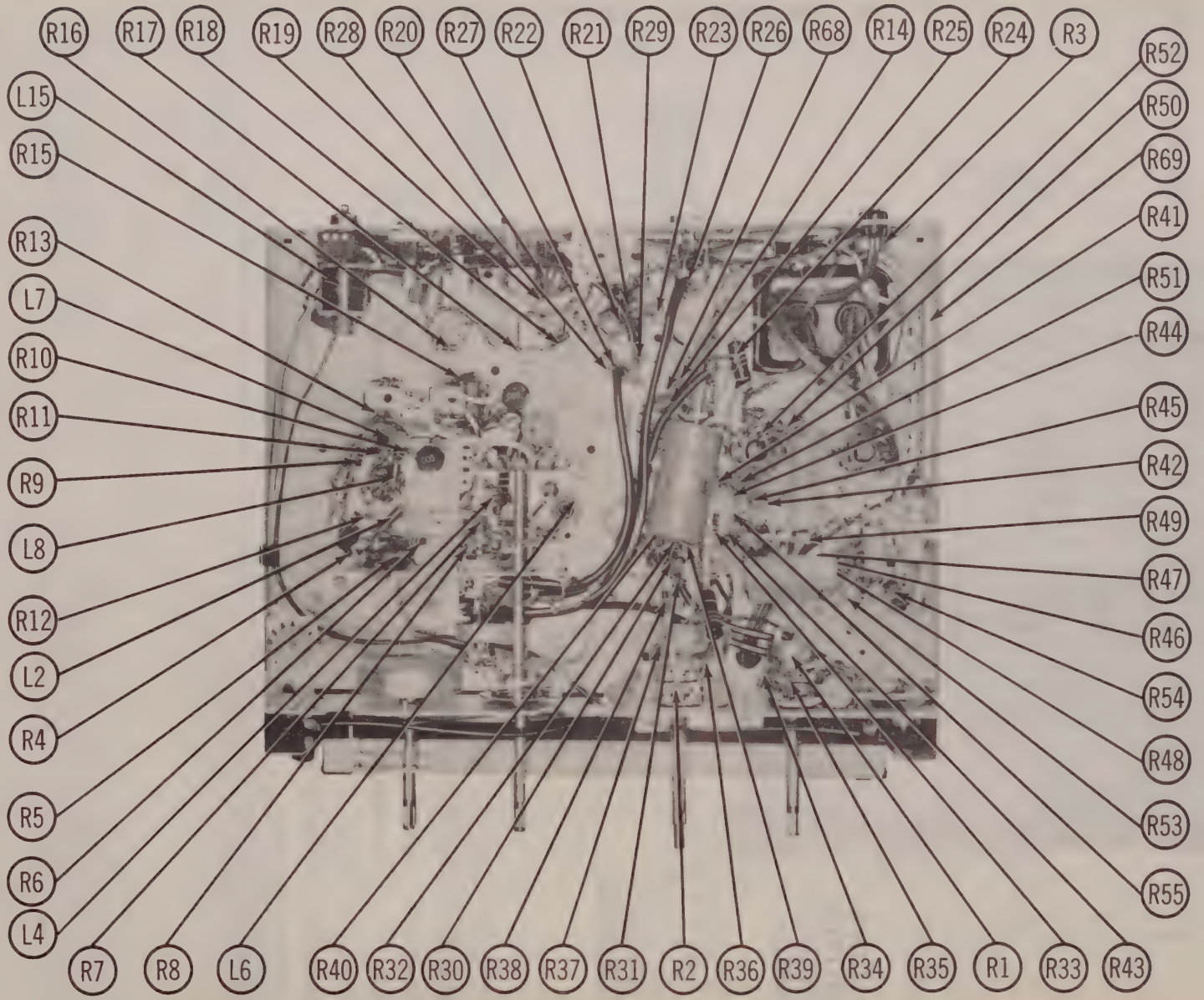
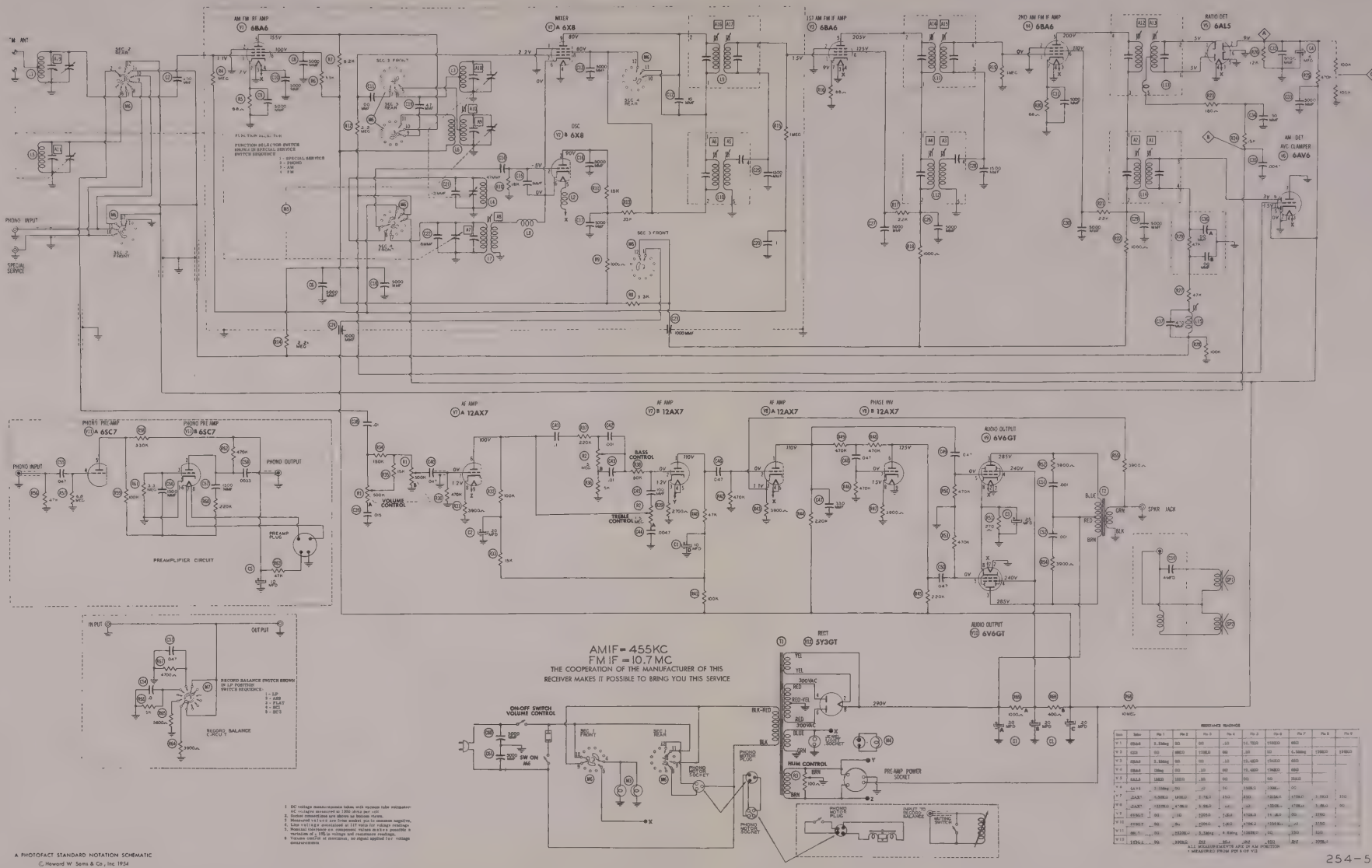


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION


AM FM RF AMP V1 6BA6
MIXER V2 A 6X8
OSC V2 B 6X8
1ST AM FM IF AMP V3 6BA6
2ND AM FM IF AMP V4 6BA6
RATIO DET V5 6AL5
AM DET AVC CLAMPER V6 6AV6
PHONO PRE AMP V11 A 6SC7
PHONO PRE AMP V11 B 6SC7
AF AMP V7 A 12AX7
AF AMP V7 B 12AX7
AF AMP V8 A 12AX7
PHASE INV V8 B 12AX7
AUDIO OUTPUT V9 6V6GT
AUDIO OUTPUT V10 6V6GT
RECT V10 5Y3GT
PHONO INPUT
SPECIAL SERVICE
PHONO OUTPUT
PREAMP PLUG
PREAMPLIFIER CIRCUIT
VOLUME CONTROL
BASS CONTROL
TREBLE CONTROL
SPKR JACK
ON-OFF SWITCH VOLUME CONTROL
SW ON AM
HUM CONTROL
PRE-AMP POWER SOCKET
PHONO MOTOR PLUG
PHONO MOTOR SOCKET
INPUT TO RECORDER BALANCE
MUTING SWITCH
RECORD BALANCE SWITCH SHOWN IN LP POSITION
RECORD BALANCE CIRCUIT
AMIF = 455KC
FM IF = 10.7MC
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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254-5

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Direct	High side to green color coded lug on AM RF coil, L6. Low side to chassis.	455KC (400~Mod)	AM	Tuning gang fully open	Across speaker output terminals.	A1, A2, A3, A4, A5, A6	Adjust for maximum output.
2.	"	"	1620KC	"	"	"	A7	"
3.	"	"	537KC	"	Tuning gang fully closed	"	A8	"
4.	"	High side to antenna stator lug on tuning gang. Low side to chassis.	1500KC	"	Tune to 1500KC signal	"	A9	"
5.	"	"	600KC	"	Tune to 600KC signal	"	A10	"
6.		Loop	1500KC	"	Tune to 1500KC signal	"	A11	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Attenuate generator output to maintain signal level just above noise level on VTVM. Connect two matched 100KΩ (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	.01MFD	High side to pin 1 (grid) of 6BA6 (V4). Low side to chassis.	10.7MC (Unmod)	FM	Tuning gang fully open	DC probe to point (A). Common to chassis	A12	Adjust for maximum deflection.
8.	"	"	"	"	"	DC probe to point (B). Common to point (C).	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
9.	"	High side to pin 1 (grid) of 6BA6 (V3). Low side to chassis.	"	"	"	DC probe to point (A). Common to chassis.	A14, A15	Adjust for maximum deflection.
10.	"	High side to pin 1 (grid) of 6BA6 (V1). Low side to chassis.	"	"	"	"	A16, A17	"

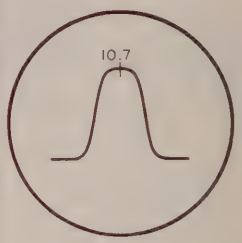


FIG. 1

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120~sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	.01MFD	High side to pin 1 (grid) of 6BA6 (V4). Low side to chassis.	10.7MC (450KC Swp)	FM	Tuning gang fully open	Vert. Amp. to point (A). Low side to chassis.	A12	Disconnect stabilizing capacitor C4. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	"	High side to pin 1 (grid) of 6BA6 (V3). Low side to chassis.	"	"	"	"	A14, A15	"
9.	"	High side to pin 1 (grid) of 6BA6 (V1). Low side to chassis.	"	"	"	"	A16, A17	"
10.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A13	Reconnect stabilizing capacitor C4. Adjust so that 10.7MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A12 for maximum amplitude and straightness of crossover lines.

FIG. 2

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11.	Direct	High side to FM antenna stator lug on tuning gang (front section). Low side to chassis.	108.5MC (Unmod)	FM	Tuning gang fully open	DC probe to point (A). Common to chassis.	C21	Reposition C21 nearer or farther from chassis until maximum deflection is obtained on VTVM.
12.	"	"	105MC	"	Tune to 105MC signal	"	A18	Adjust for maximum deflection.
13.	"	"	87.5MC	"	Tuning gang fully closed	"	L4	Adjust for maximum deflection by compressing or expanding L4. Repeat steps 11, 12 and 13 until proper oscillator tracking is obtained.
14.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	105MC	"	Tune to 105MC signal	"	A19	Adjust for maximum deflection.
15.	"	"	90MC	"	Tune to 90MC signal	"	L1	Adjust for maximum deflection by compressing or expanding L1. Repeat steps 14 and 15 until proper RF tracking with maximum sensitivity is obtained.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		CAPEHART PART No.	STANDARD REPLACEMENT		
V1	AM FM RF Amp.	6BA6	6BA6	7BK	
V2	AM FM Converter	6X8	6X8	9AK	
V3	1st. AM FM IF Amp.	6BA6	6BA6	7BK	
V4	2nd. AM FM IF Amp.	6BA6	6BA6	7BK	
V5	Ratio Detector	6AL5	6AL5	6BT	
V6	AM Detector-AVC Clamper	6AV6	6AV6	7BT	
V7	AF Amplifier	12AX7	12AX7	9A	
V8	AF Amplifier-Phase Inverter	12AX7	12AX7	9A	
V9	Audio Output	6V6GT	6V6GT	7S	
V10	Audio Output	6V6GT	6V6GT	7S	
V11	Phono Pre-Amp.	6SC7	6SC7	8S	
V12	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CAPEHART PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	▬30	450	750090B-43	AFH3-37		C028		FP444.8	TVL-4769	
B	■20	450		PRS450/10		BR1045				
C	▲20	450								
D	10	450								
C2	20	450	650228A-12	PRS450/20		BR2045A		TC75	TVA-1709	
C3	25	25	650228A-7	PRS25/25		BR252A		TC26	TVA-1205	
C4	4	50	650228A-14	PRS150/4		BR550		TC30	TVA-1303	
C5	10	450	452203A-1	PRS450/10		BR1045		TC72	TVA-1705	
C6	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C7	250		450469A-9	BPD-00025	D6-251	G053	GP1K-251	UC-5325	5GA-T25	
C8	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C9	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C10	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C11	100		2271-0686	S1100N750	TCN-100	TN22	N750L-101	NT-531	5TCU-T1	
C12	10		650501A-32							
C13	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C14	47		2271-0678	S147N750	TCN-47	TN14	N750K-470	NT-5447	5TCU-Q47	
C15	1		650501A-27	S1INP0	TCZ-1	TZ03	NP0K-1			
C16	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C17	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C18	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C19	47		2271-0678	S147N750	TCN-47	TN14	N750L-101	NT-531	5TCU-Q47	
C20	.1	200	2246-1040	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C21	12		2271-5599							
C22	6		650501A-32	SI6	D6-060		GP1K-060			
C23	1000		650716A-1							
C24	1000									
C25	1500		750272A-35	1464-0015		1R5D15		MC236	1FM-215	
C26	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C27	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C28	1500		750272A-35	1464-0015		1R5D15		MC236	1FM-215	
C29	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C30	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C31	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C32	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C33	5000		450469A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C34	150		650162A-8			22R5T15		MC236	1FM-315	
C35	.0047	600	2248-4720	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C36A	100		♦452171A-1	♦PA-97-1	♦PC-50	♦111TM1	♦1403-01	UC-531	♦100C1	
B	100							UC-531		
C37	470		750272A-39			5R5T47				
C38	.01	200	2246-1040	P288-01	D6-103	PJ2S1	GP2-333-103	PT411	2TM-S1	
C39	.015	200	2246-1530	P288-015		PJ2S15		PT4115	2TM-S15	
C40	.047	600	2248-4730	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C41	.1	400	2247-1040	P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C42	.001	600	2248-1020	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C43	.01	400	2248-1030	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CAPEHART PART No.	IRC PART No.	
R28	100KΩ	½	3230-104	BTS-100K	
R29	47KΩ	½	♦ 452171A-1	BTS-47K	
R30	470KΩ	½	3230-474	BTS-470K	
R31	3900Ω 5%	½	3228-392	BTS-3900 5%	
R32	100KΩ	½	3230-104	BTS-100K	
R33	15KΩ	½	3229-153	BTS-15K	
R34	150KΩ	½	3229-154	BTS-150K	
R35	15KΩ	½	3229-153	BTS-15K	
R36	15KΩ	½	3229-153	BTS-15K	
R37	220KΩ	½	3229-224	BTS-220K	
R38	150KΩ	½	3229-153	BTS-150K	
R39	2700Ω 5%	½	3228-272	BTS-2700 5%	
R40	47KΩ	½	3230-473	BTS-47K	
R41	100KΩ	½	3230-104	BTS-100K	
R42	470KΩ	½	3230-474	BTS-470K	
R43	3900Ω 5%	½	3228-392	BTS-3900 5%	
R44	220KΩ	½	3229-224	BTS-220K	
R45	220KΩ	½	3229-224	BTS-220K	
R46	470KΩ	½	3230-474	BTS-470K	
R47	3900Ω 5%	½	3228-392	BTS-3900 5%	
R48	470KΩ 5%	½		BTS-470K 5%	
R49	470KΩ 5%	½		BTS-470K 5%	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CAPEHART PART No.	IRC PART No.	
R50	470KΩ	½	3230-474	BTS-470K	
R51	270Ω 5%	1	3234-271	BTA-270 5%	
R52	3900Ω 5%	1	3228-392	BTA-3900 5%	
R53	470KΩ	½	3230-474	BTS-470K	
R54	3900Ω 5%	1	3229-392	BTA-3900 5%	
R55	3900Ω 5%	½	3228-392	BTS-3900 5%	
R56	.47KΩ	½	3229-473	BTS-47K	
R57	6.8Meg	½	3229-685	BTS-6.8Meg	
R58	330KΩ	½	3229-334	BTS-330K	
R59	100KΩ	½	3229-224	BTS-100K	
R60	220KΩ 5%	½		BTS-220K 5%	
R61	3.3Meg	½	3230-335	BTS-3.3Meg	
R62	470KΩ	½	3229-474	BTS-470K	
R63	47KΩ	½	3229-473	BTS-47K	
R64	3900Ω 5%	½	3228-392	BTS-3900 5%	
R65	5600Ω 5%	½	3228-562	BTS-5600 5%	
R66	15KΩ	½	3229-153	BTS-15K	
R67	4700Ω	½	3229-472	BTS-4700	
R68	10 Meg	½	3229-106	BTS-10 Meg	
R69A	1000Ω	5	750288A-8		
B	400Ω	5			

♦ Items R29, C36A, C36B are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	CAPEHART PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @.77A	584VCT .104ADC	5VAC @2A	6.3VAC .35A	750502A-1					
	SEC. 4									
	6.3VAC @4A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CAPEHART PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T2	10KΩ CT	4.7Ω	750503A-1			S-31A			

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	CAPEHART PART No.	JENSEN PART No.	QUAM PART No.	
SP1	8"	PM	3.5Ω	850297A-1			
SP2	Tweeter			750500A-1			

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	CAPEHART PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	FM Ant. Coil	0Ω (tapped)		453383A-1				
L2	Fil. Choke	.3Ω		452864A-1	19-1003		4608	4 Microhenries
L3	FM RF Coil	0Ω (tapped)		453382A-1				
L4	FM Osc. Coil	0Ω		453379B-1				
L5	AM Ant. Coil	.5Ω		650664B-1				
L6	AM RF Coil	6.5Ω	4.2Ω	650727B-1	14-1076			Sec. tapped @ 2.8Ω
L7	AM Osc. Coil	1Ω	5Ω	650729A-1	14-1074	BC-381	71-Osc.	
L8	RF Choke	.4Ω		452864A-1	19-1003		4608	4 Microhenries
L9	1st FM IF	.8Ω	.8Ω	452027A-1	16-3487	FM-254	1463	
L10	2nd AM IF	11Ω	11Ω	452019A-1	16-6758 *	BC-352 *	12-C1 *	
L11	2nd FM IF	.8Ω	.8Ω	452027A-1	16-3487	FM-254	1463	
L12	2nd AM IF	11Ω	11Ω	452019A-1	16-6758 †	BC-352 †	12-C1 †	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA CAPEHART PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C44	.0047	600	2248-4720	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C45	100	500	750272A-11	1469-0001		22R5T1		MC235	MS-31	
C46	.047	600	2248-4730	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C47	330	500	650162A-9			22R5T33				
C48	.047	600	2248-4730	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C49	.047	600	2248-4730	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C50	.047	600	2248-4730	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C51	.001	600	2248-1020	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C52	.001	600	2248-1020	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C53	.047	200	2246-4730	P288-047	DF-503	PJ2S47		PT4147	2TM-S47	
C54	.01	200	2246-1030	P288-01	D6-103	PJ2S1	GP2-333-103	PT411	2TM-S1	
C55	.047	200	2246-4730	P288-047	DF-503	PJ2S47		PT4147	2TM-S47	
C56	1500	500	750272A-35	1464-0015		1R5D15		MC236	1FM-215	
C57	1500	500	750272A-35	1464-0015		1R5D15		MC236	1FM-215	
C58	.0033	600	2248-3320	P688-0033	D6-332	CUB6D33	GP2-333-332	PT6233	6TM-D33	
C59	4	50	650663A-3							
C60	5000		453521A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C61	5000		453521A-1	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	

♦ Items C36A, C36B and R29 are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CAPEHART PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	-750412A-2	Q13-133			UF55A	} Volume
B	500KΩ	½		M13-133			UR55A	}
C	Shaft		Not Req.	Not Req.			DS-36	Attach to R1A
D	Switch		Not Req.	76-1			US-26	Attach to R1B
R2A	1.5Meg	½	750303A-7				UF155A	Treble-Panel
B	1.5Meg	½					UR26L	Bass-Rear
R3	100Ω	1	650642A-6		39-100			Hum

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA CAPEHART PART No.	IRC PART No.	NOTES
R4	1 Meg	½	3230-105	BTS-1 Meg	
R5	68Ω	½	3229-680	BTS-68	
R6	33KΩ	½	3230-333	BTS-33K	
R7	8200Ω	½		BTS-8200	
R8	3300Ω	½	3229-322	BTS-3300	
R9	1000Ω	½	3230-102	BTS-1000	
R10	18KΩ	½	3229-183	BTS-18K	
R11	15KΩ	½	3229-153	BTS-15K	
R12	2.2Meg	½	3230-225	BTS-2.2Meg	
R13	33KΩ	½	3230-333	BTS-33K	
R14	2.2Meg	½	3230-225	BTS-2.2Meg	
R15	1 Meg	½	3230-105	BTS-1 Meg	
R16	68Ω	½	3229-680	BTS-68	
R17	22KΩ	½	3229-223	BTS-22K	
R18	1000Ω	½	3230-102	BTS-1000	
R19	1 Meg	½	3230-105	BTS-1 Meg	
R20	68Ω	½	3229-680	BTS-68	
R21	22KΩ	½	3229-223	BTS-22K	
R22	1000Ω	½	3230-102	BTS-1000	
R23	180Ω	½	3229-181	BTS-180	
R24	15KΩ	½	3229-153	BTS-15K	
R25	470KΩ	½	3230-474	BTS-470K	
R26	12KΩ	½	3229-123	BTS-12K	
R27	47KΩ	½	3230-473	BTS-47K	

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA CAPEHART PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L13	Ratio Det.	4.4Ω	1.6ΩCT	453712A-1	17-3488 ■	FM-255	1465	Tertiary winding=.5Ω
L14	3rd AM IF	10Ω	10Ω	450336A-1	16-6758	BC-353	12-C2	

* Disconnect C25.
† Disconnect C28.
■ Cut out 1 1/8" sq. chassis hole and drill mounting holes.

10KC FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA CAPEHART PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L15		460Ω		650811A-1					22S44 ①

PHONO CARTRIDGE

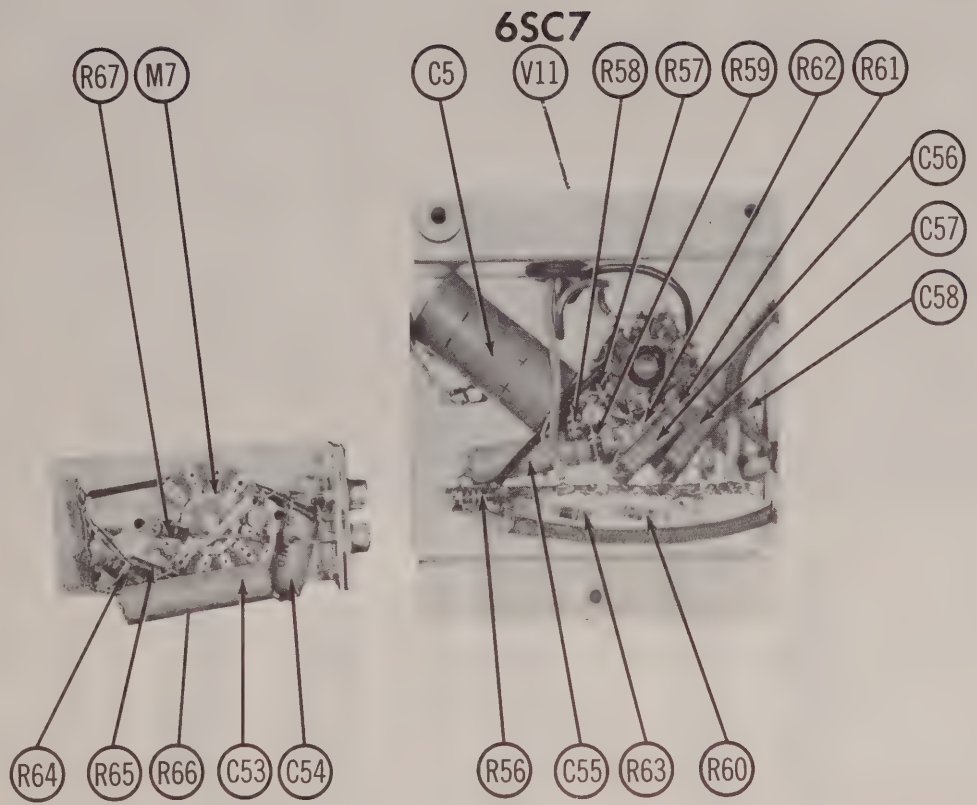
ITEM No.	REPLACEMENT DATA CAPEHART PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1								

PHONO NEEDLE

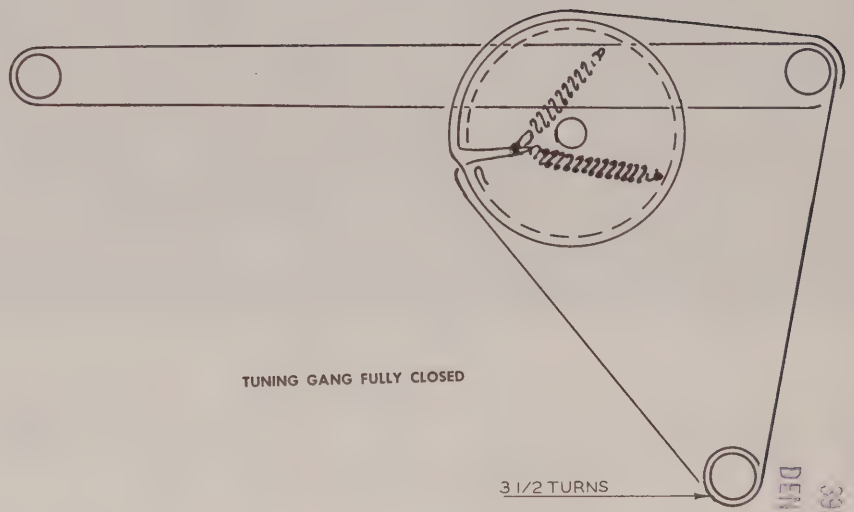
ITEM No.	REPLACEMENT DATA CAPEHART PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	REMARKS
M2		† GE-11	† AC-410 •† AC-410D1 ♦ AC-410D	† W-66TPS	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	CAPEHART PART No.	NOTES
M3	Dial light	600093A-5	# 44-2 used
M4	Jewel light		# 47
M5	Tuning cap	750413A-1	(23-345MMF, 24-295MMF, 22-165MMF)
M6	Switch	750411A-1	Function selector
M7	Switch	650807A-1	Record equalizer
	Knob	452681A-3	Tuning & volume (Models RP-154M, 11RP-125F)
	Knob	452681A-2	Tuning & volume (Model RP-154B)
	Knob	452683A-4	Treble & record balance (Models RP-154M, 11RP-125F)
	Knob	650856A-5	Treble & record balance (Model RP-154B)
	Knob	452682A-4	Bass (models RP-154M, 11RP-125F)
	Knob	650855A-5	Bass (Model RP-154B)
	Knob	452684A-4	Function (Models RP-154M, 11RP-125F)
	Knob	650857A-5	Function (Model RP-154B)
	Dial glass	650666A-1	

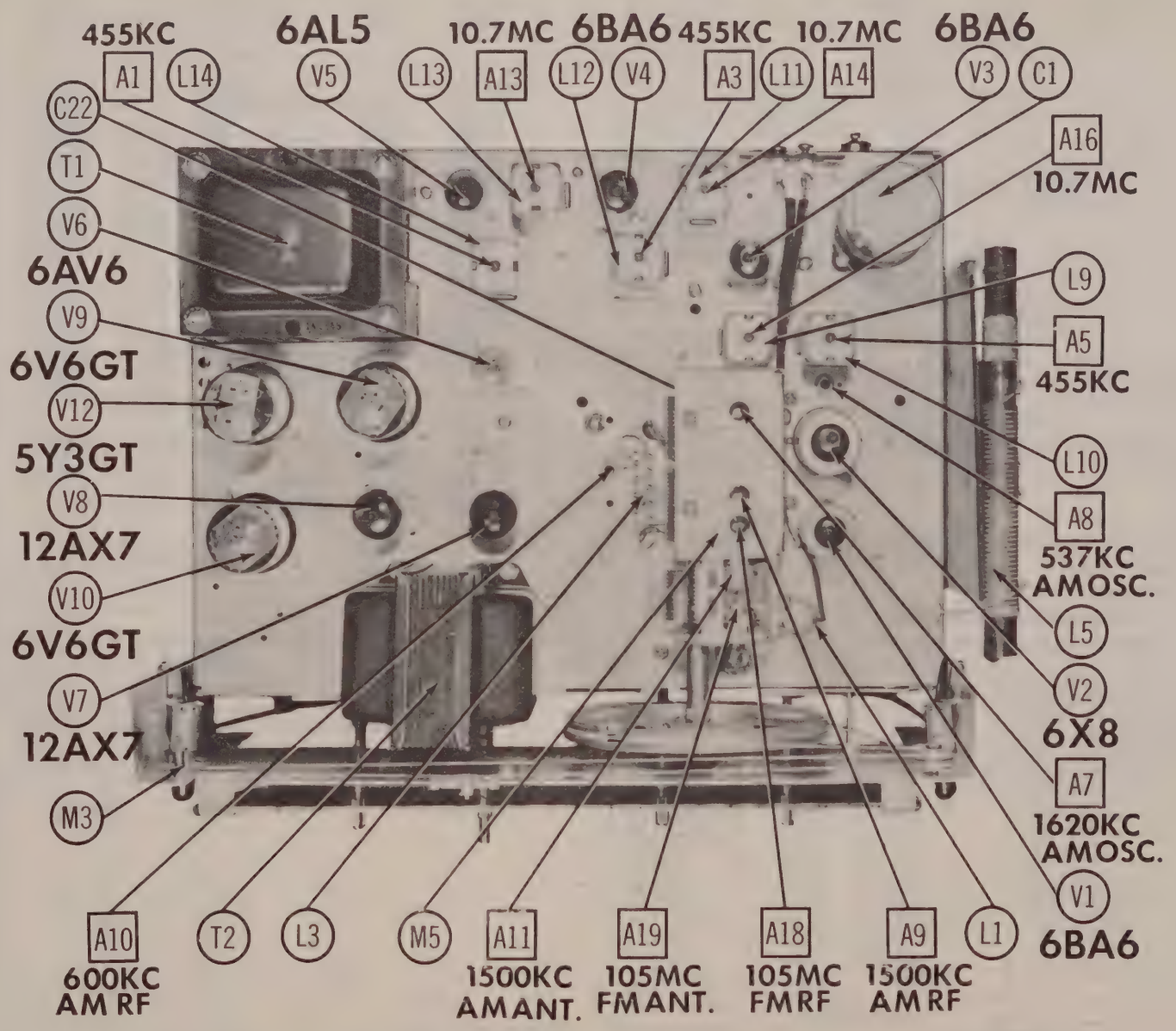


PRE-AMP & EQUALIZER



DIAL CORD STRINGING

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



CHASSIS TOP VIEW

PHOTOFACT* Folder

RETMA MEMBER

HOFFMAN MODELS 7B157, U, 7M156, U, 21B154, U, 21B164, U, 21B167, U, 21B337P,U, 21M153, U, 21M166, U, 21M336P, U, 21P168, U, 21P338P, U, (Ch. 301-17, -21, 302)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

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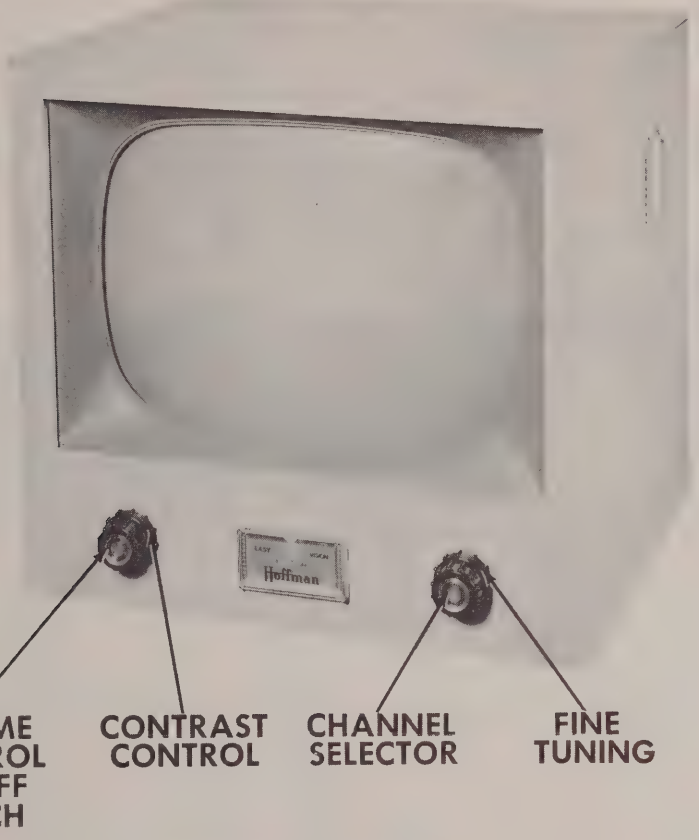

HOFFMAN MODEL 21B164

TRADE NAME	Hoffman	MODELS	CHASSIS
		7M156, U, 7M157, U	301-17
		21B154, U, 21B164, U, 21M153, U, 21M336, U, 21M337, U	301-21
		21B167, U, 21B337P, U, 21M166, U, 21M336P, U, 21P168, U, 21P338P, U	302
MANUFACTURER	Hoffman Radio Corp., 6200 S. Avalon Blvd., Los Angeles 3, Calif.		
TYPE SET	Television Receiver		
TUBES	Nineteen		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING 1.42 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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HOFFMAN MODELS 7B157, U, 7M156, U, 21B154, U, 21B164, U, 21B167, U, 21B337 P,U, 21M153, U, 21M166, U, 21M336P, U, 21P168, U, 21P338P, U, (Ch. 301-17, -21, 302)

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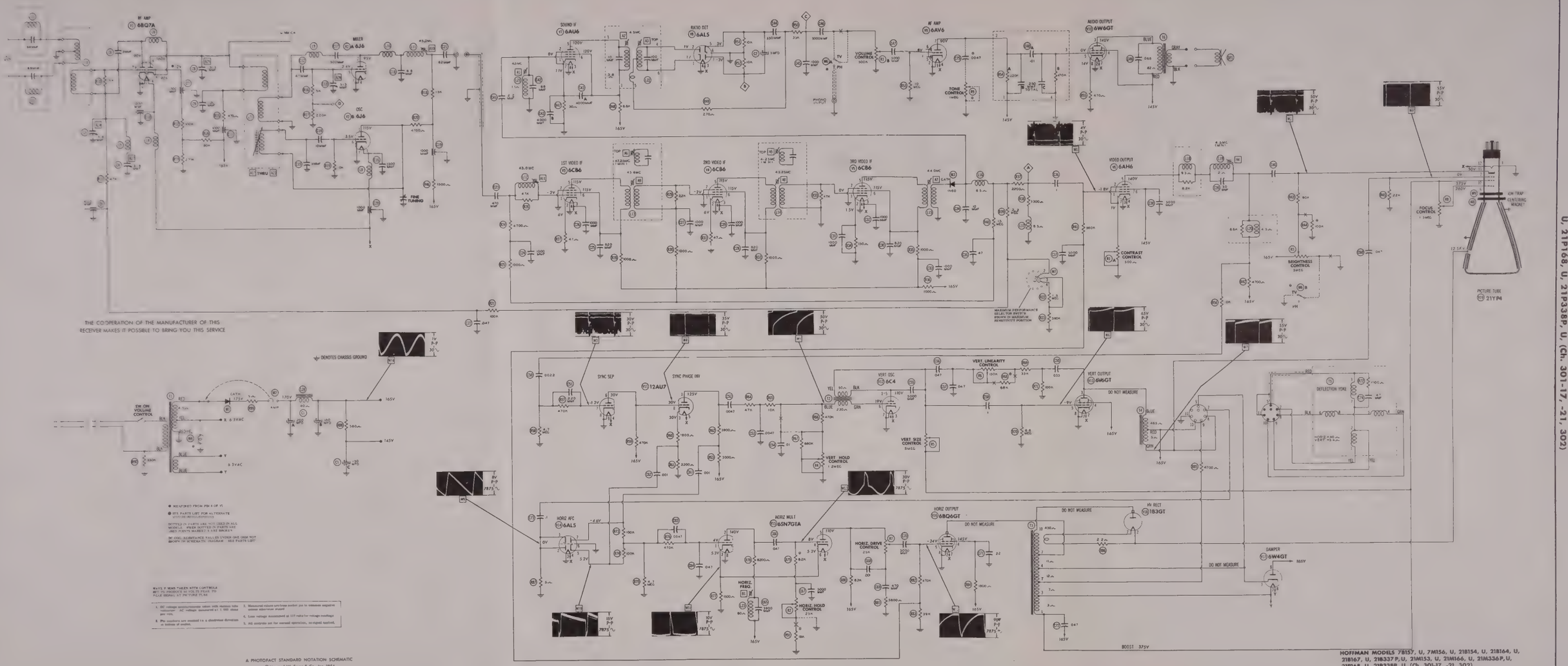
RF AMP V1 6BQ7A
MIXER V2 6J6
OSC V3 6J6
FINE TUNING
SOUND IF V4 6AU6
RATIO DET V5 6AL5
AF AMP V6 6AV6
VOLUME CONTROL 500K
TONE CONTROL 1MEG
AUDIO OUTPUT V10 6W6GT
1ST VIDEO IF V6 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO OUTPUT V8 6AH6
CONTRAST CONTROL 500Ω
BRIGHTNESS CONTROL 5MEG
FOCUS CONTROL 1.5MEG
ION TRAP CENTERING MAGNET
PICTURE TUBE V17 21YP4
THE CO-OPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DENOTES CHASSIS GROUND
SW. ON VOLUME CONTROL
SYNC SEP
SYNC PHASE INV V11 12AU7
VERT OSC V13 6C4
VERT. LINEARITY CONTROL
VERT OUTPUT V11 6V6GT
VERT SIZE CONTROL 5MEG
VERT HOLD CONTROL 1.2MEG
DEFLECTION YOKE
HORIZ AFC V16 6AL5
HORIZ MULT V15 6SN7GTA
HORIZ OUTPUT V18 6BQ6GT
HORIZ. DRIVE CONTROL 25Ω
HORIZ. FREQ.
HORIZ. HOLD CONTROL 2.2MEG
HV RECT V19 1B3GT
DAMPER V17 6W4GT
DO NOT MEASURE
BOOST 375V
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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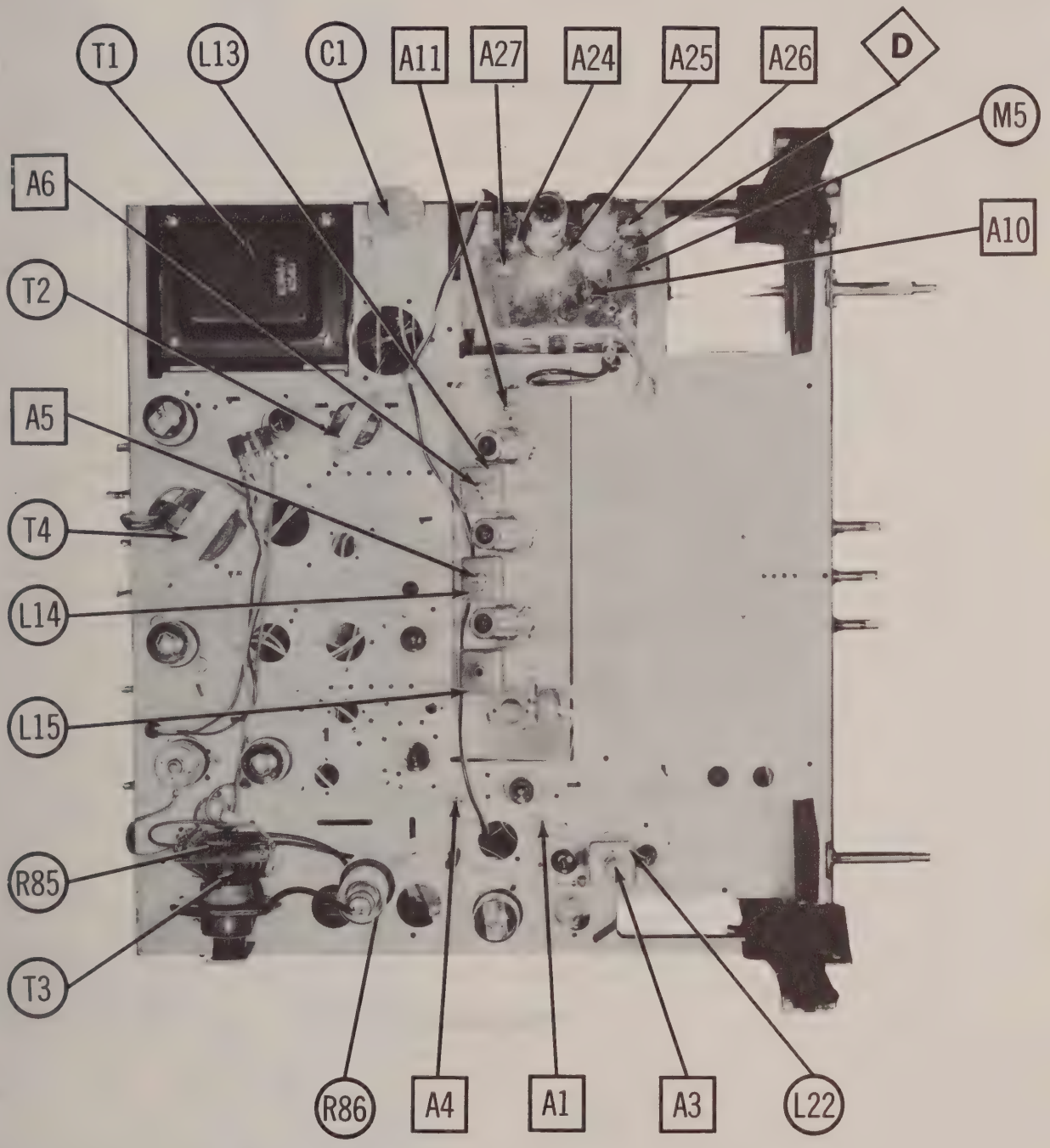

CHASSIS TOP VIEW

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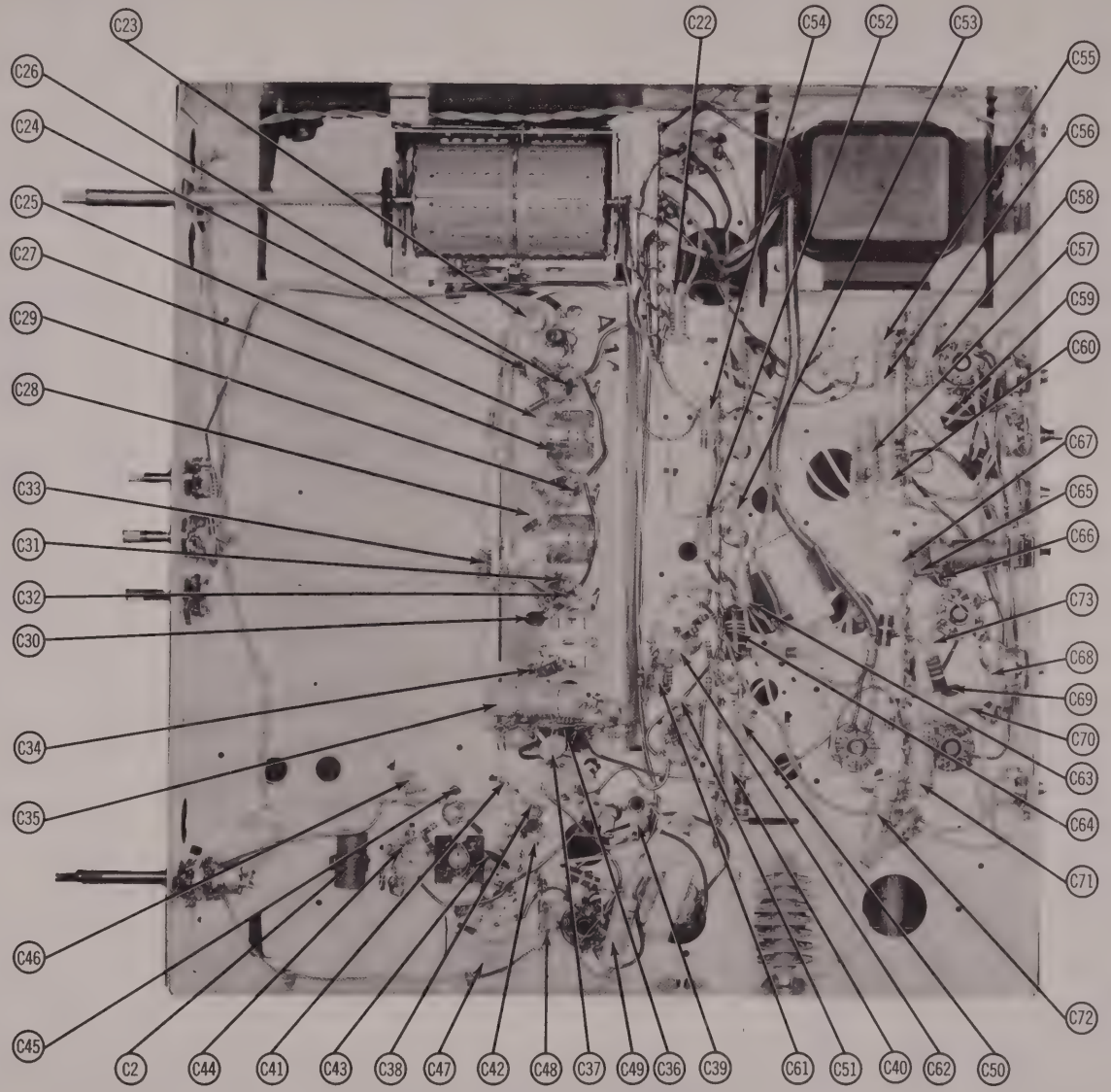

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART

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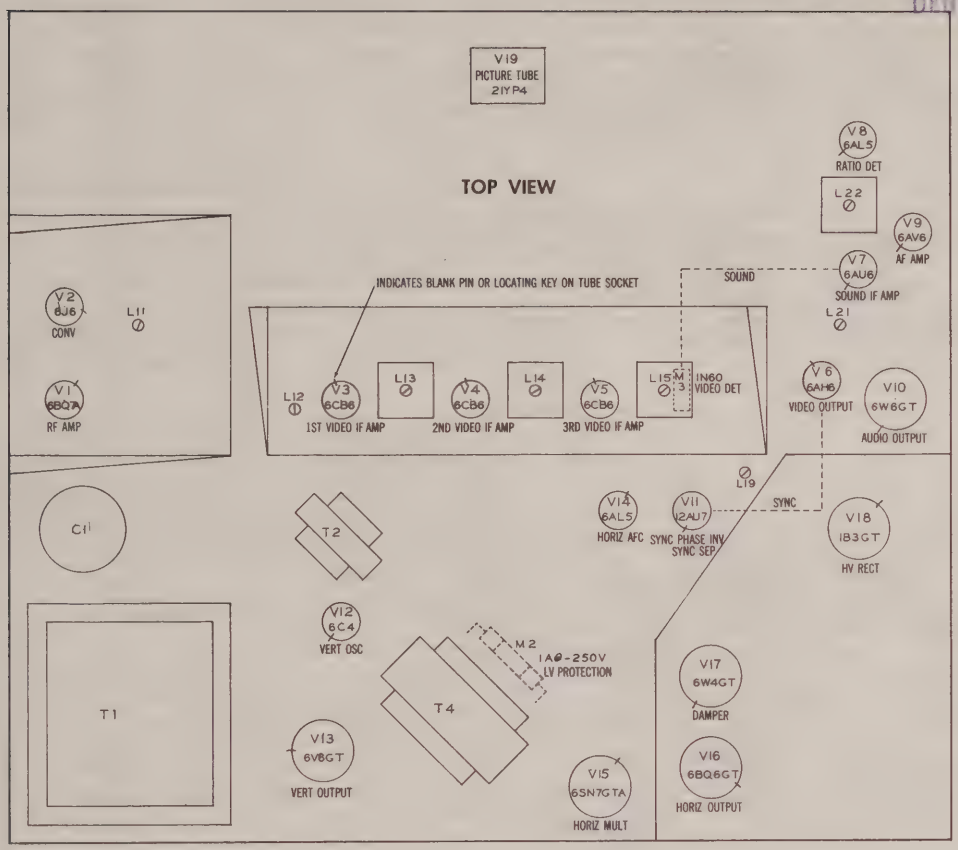

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - Selenium Rectifier (M1), Fuse (M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V19
Has pic, no sound - V7, V8, V9, V10

SYNC FAILURE
No vert. sync - V11, V12
No horiz. sync - V11, V14, V15
No vert. or horiz. sync - V11

SWEEP FAILURE
No raster, has sound - V15, V16, V17, V18, V19
No vertical deflection - V12, V13
Poor vert. linearity or foldover - V12, V13
Poor horiz. linearity or foldover - V15, V16, V17
Narrow picture - V15, V16, V17, V18, M1
Vert. off freq. - V11, V12
Horiz. off freq. - V11, V14, V15

HOFFMAN MODELS 7B157, U, 7M156, U, 21B154, U, 21B164, U, 21B167, U, 21B337 P, U, 21M153, U, 21M166, U, 21M336P, U, 21P168, U, 21P338P, U, (Ch. 301-17, -21, 302)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the 6BQ6 (V16) from its socket or by connecting the negative lead of a 60 volt bias supply to pin 5 (grid) of V16. Connect the positive lead to chassis.
Switch the tuner between channels so that the detent roller rests on one of the high points of the drum disc. This will disable the local oscillator and reduce the possibility of erroneous indications.
Use an isolation transformer to protect the test equipment.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.005MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Set channel selector between any two channels.	DC probe thru 10KΩ to point (B). Common to chassis.	A1, A2	Attenuate generator output to maintain from 4 to 7 volts at VTVM. Adjust A1 and A2 for maximum deflection.
2.	"	"	"	"	DC probe thru 10KΩ to point (C). Common to chassis.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.005MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Set channel selector between any two channels	Vert. Amp. thru 10KΩ to point (B). Low side to chassis	A1, A2	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
2.	"	"	"	"	"	Vert. Amp. thru 10KΩ to point (C). Low side to chassis	A3	Reconnect stabilizing capacitor C2. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 2. SLIGHTLY retouch A2 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
3.	.005MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Set channel selector between any two channels.	DC probe thru detector (Fig. 3) to pin 11 (cathode) of picture tube Common to chassis.	A6	Adjust for MINIMUM deflection.

VIDEO IF ALIGNMENT

Turn contrast control fully clockwise.
Connect the negative lead of a 3 volt bias battery to the ungrounded side of C35. Connect the positive lead to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	Direct	High side to an ungrounded tube shield floating over converter tube (V2). Low side to chassis.	41.25MC (Unmod)	Set channel selector between any two channels.	DC probe thru 10KΩ to point (A). Common to chassis.	A5	Adjust for MINIMUM deflection.
5.	"	"	47.25MC	"	"	A6	"
6.	"	"	44.0MC	"	"	A7	Attenuate generator output to maintain 1 Volt at VTVM. Adjust for maximum deflection.
7.	"	"	43.25MC	"	"	A8	"
8.	"	"	45.6MC	"	"	A9	"
9.	"	"	43.0MC	"	"	A10	Adjust for MINIMUM deflection.
10.	"	"	43.0MC	"	"	A11	Adjust for maximum deflection.
11.	"	"	45.0MC	"	"	A10	Adjust for maximum deflection. Repeat steps 4 thru 11 until no further improvement is noted.

OVERALL VIDEO IF RESPONSE CHECK

Connect a .001MFD capacitor across the vertical input terminals of scope. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Direct	High side to an ungrounded tube shield floating over converter tube (V2). Low side to chassis.	44MC (10MC Swp)	41.25MC 42.5MC 45.75MC 47.25MC	Set channel selector between any two channels	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.		Check for response curve similar to Fig. 4. Use high scope gain and sweep generator output and remove bias battery to view 41.25MC and 47.25MC markers. If necessary, retouch A5 thru A10 to obtain desired response.

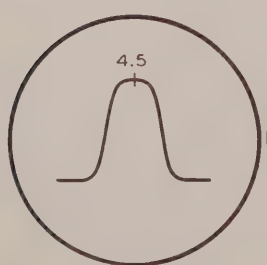

FIG. 1

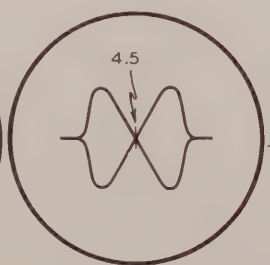

FIG. 2

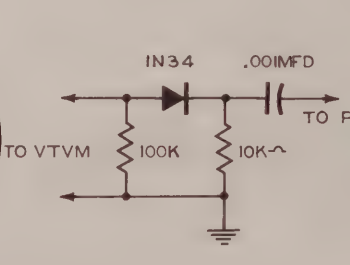

FIG. 3

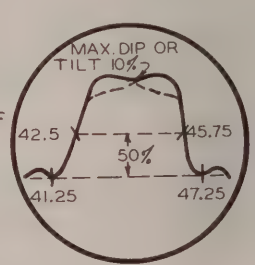

FIG. 4

ALIGNMENT INSTRUCTIONS (cont)

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VHF OSCILLATOR ALIGNMENT

Restore converter tube (V2) shield to its original position.
The VHF channel oscillator adjustment screws are reached through a holes just to the right of the channel switch shaft. This hole extends through the UHF tuner when adjusting the VHF channel oscillator adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Leave bias connected as under "Video IF Alignment" and connect a jumper from the ungrounded side of C35 to the tuner AGC terminal.
Connect the syncrhonized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 5. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A13	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A14	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A15	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A16	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A17	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A18	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A19	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A20	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A23	

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to point (D). Low side to chassis.	A24 A25 A26	Adjust for response curve similar to Fig. 6 with markers above 90%.
15.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		If markers fall below 70% on any channel make compromise adjustment of A24, A25 and A26 with channel switch set to that channel, then check all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

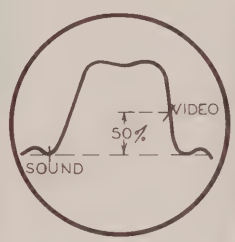


FIG. 5

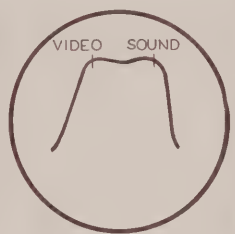


FIG. 6

44MC TRAP ALIGNMENT

Adjust the 44MC trap trimmer, A27, for minimum interference on channel 2.

UHF OSCILLATOR ALIGNMENT

Switch tuner to UHF position and remove tuner knobs. The UHF channel oscillator adjustment screws are reached through the same hole used for VHF oscillator adjustment. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel strip.
Leave the bias battery connected as under "VHF Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	473MC (10MC Swp)	471.25MC 475.75MC	14	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.	A28	Adjust to place sound marker in trap notch as in Fig. 5. Video marker should be at 50%.
			515MC (10MC Swp)	513.25MC 517.75MC	21		A29	
			575MC (10MC Swp)	573.25MC 577.75MC	31		A30	
			635MC (10MC Swp)	633.25MC 637.75MC	41		A31	
			695MC (10MC Swp)	693.25MC 697.75MC	51		A32	
			755MC (10MC Swp)	753.25MC 757.75MC	61		A33	
			815MC (10MC Swp)	813.25MC 817.75MC	71		A34	
			875MC (10MC Swp)	873.25MC 877.75MC	81		A35	

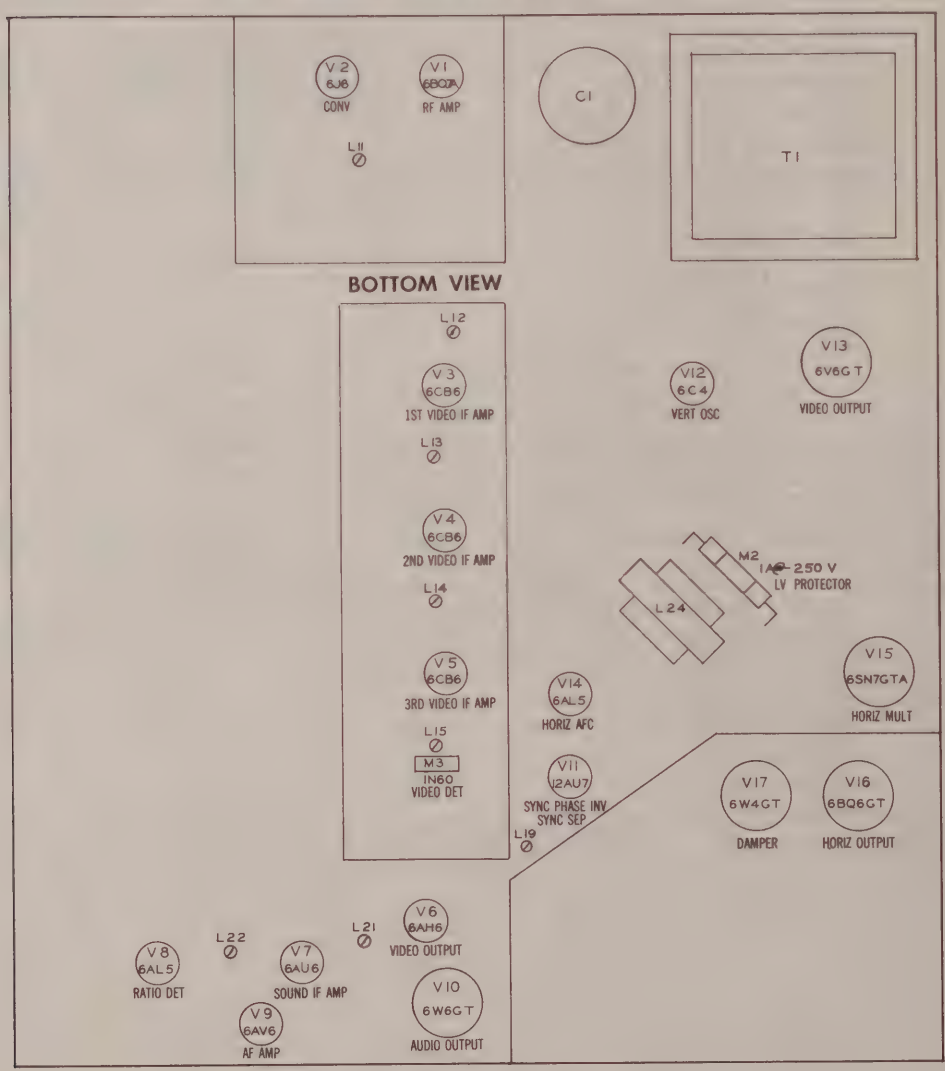
UHF RF AND MIXER ALIGNMENT

The UHF RF and Mixer portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

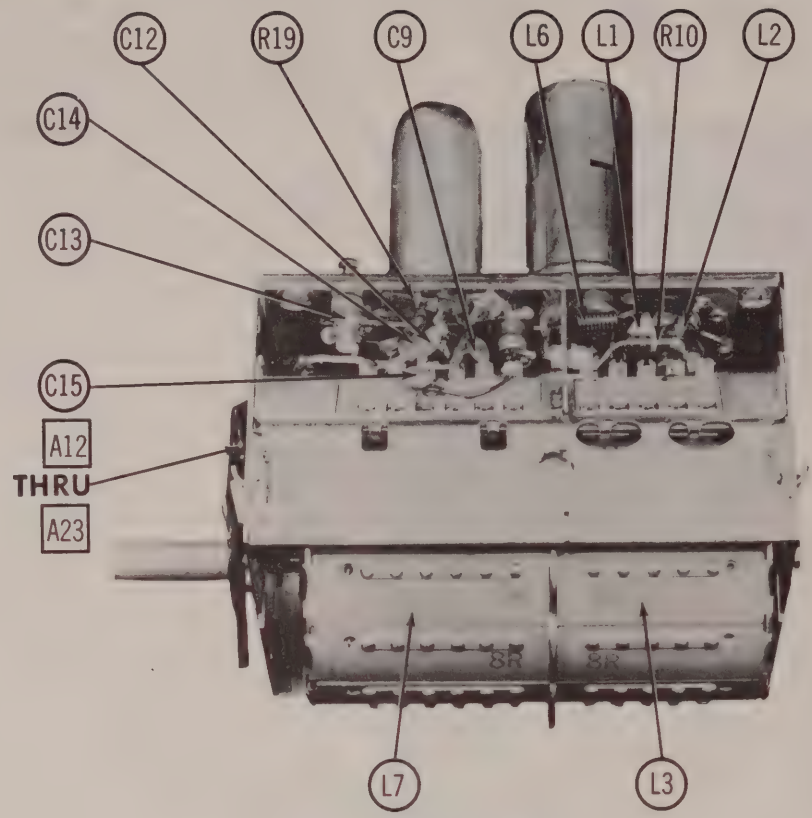
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	INF	▲490KΩ	0Ω	.1Ω	0Ω	†500Ω	160KΩ	INF	0Ω
V 2	6J6	†5.4KΩ	†15.7KΩ	.1Ω	0Ω	235KΩ	10KΩ	0Ω		
V 3	6CB6	1.5Meg	47Ω	.1Ω	0Ω	†2KΩ	†2KΩ	0Ω		
V 4	6CB6	1.5Meg	47Ω	.1Ω	0Ω	†2KΩ	†2KΩ	0Ω		
V 5	6CB6	.1Ω	150Ω	.1Ω	0Ω	†2KΩ	†2KΩ	0Ω		
V 6	6AH6	600KΩ	500Ω	0Ω	.1Ω	†4.7KΩ	†40Ω	500Ω		
V 7	6AU6	1.1Ω	150Ω	.1Ω	0Ω	†6.8KΩ	†6.8KΩ	150Ω		
V 8	6AL5	INF	INF	.1Ω	0Ω	10KΩ	0Ω	†10KΩ		
V 9	6AV6	10Meg	0Ω	0Ω	.1Ω	INF	INF	†220KΩ		
V 10	6W6GT	†600Ω	0Ω	†782Ω	†600Ω	470KΩ	INF	.1Ω	470Ω	
V 11	12AU7	†6.9KΩ	†470KΩ	4KΩ	.1Ω	.1Ω	†470KΩ	5.2Meg	0Ω	
V 12	6C4	■2.5Meg	INF	.1Ω	0Ω	■2.5Meg	650KΩ	0Ω		
V 13	6V6GT	INF	.1Ω	†500Ω	†40Ω	6.8Meg	INF	0Ω	0Ω	
V 14	6AL5	15Ω	15Ω	0Ω	.1Ω	4.8Meg	0Ω	4.8Meg		
V 15	6SN7GTA	5.2Meg	†8.2KΩ	1.5KΩ	130KΩ	†82KΩ	1.5KΩ	.1Ω	0Ω	
V 16	6BQ6GT	INF	0Ω	INF	†1.8KΩ	510KΩ	INF	.1Ω	0Ω	TOP CAP ■11Ω
V 17	6W4GT	INF	INF	1.4Meg	INF	†40Ω	INF	1.4Meg	1.4Meg	
V 18	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ■460Ω
V 19	21YP4	0Ω	22KΩ	PIN 6 ■450KΩ	PIN 10 ■22Ω	PIN 11 †350KΩ	PIN 12 .1Ω			

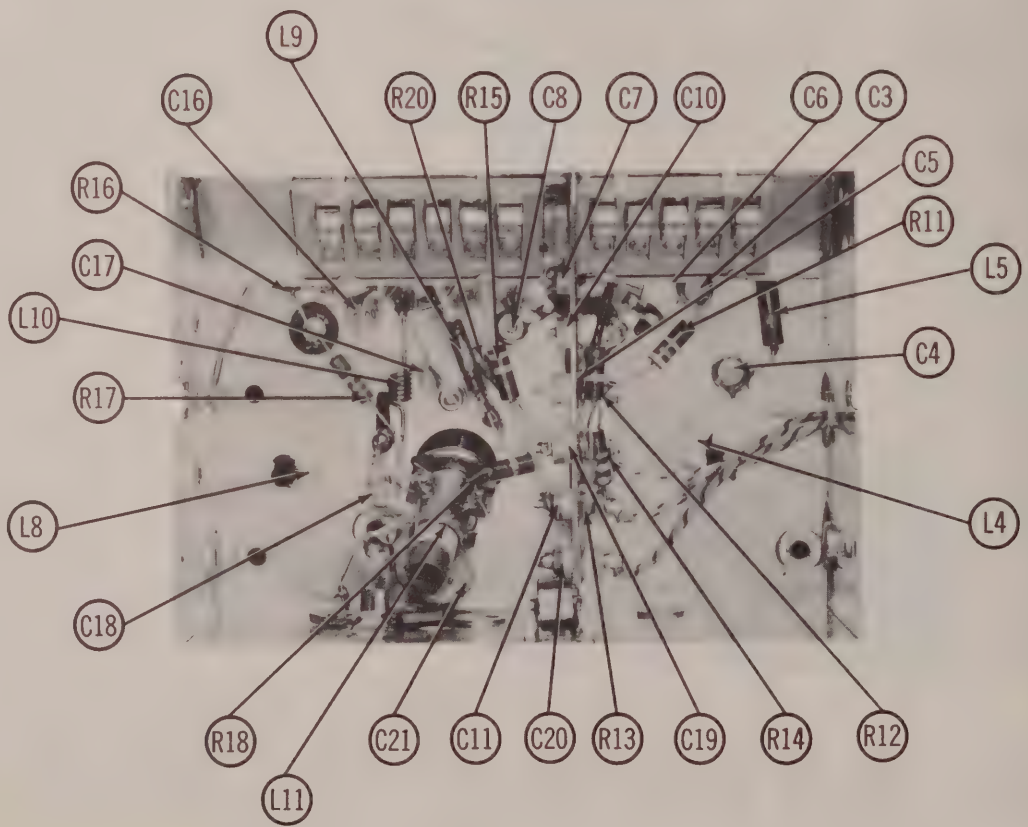
▲ MEASURED WITH AGC SWITCH IN MINIMUM POSITION
† MEASURED FROM C1A
■ MEASURED FROM PIN 3 OF V17



TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

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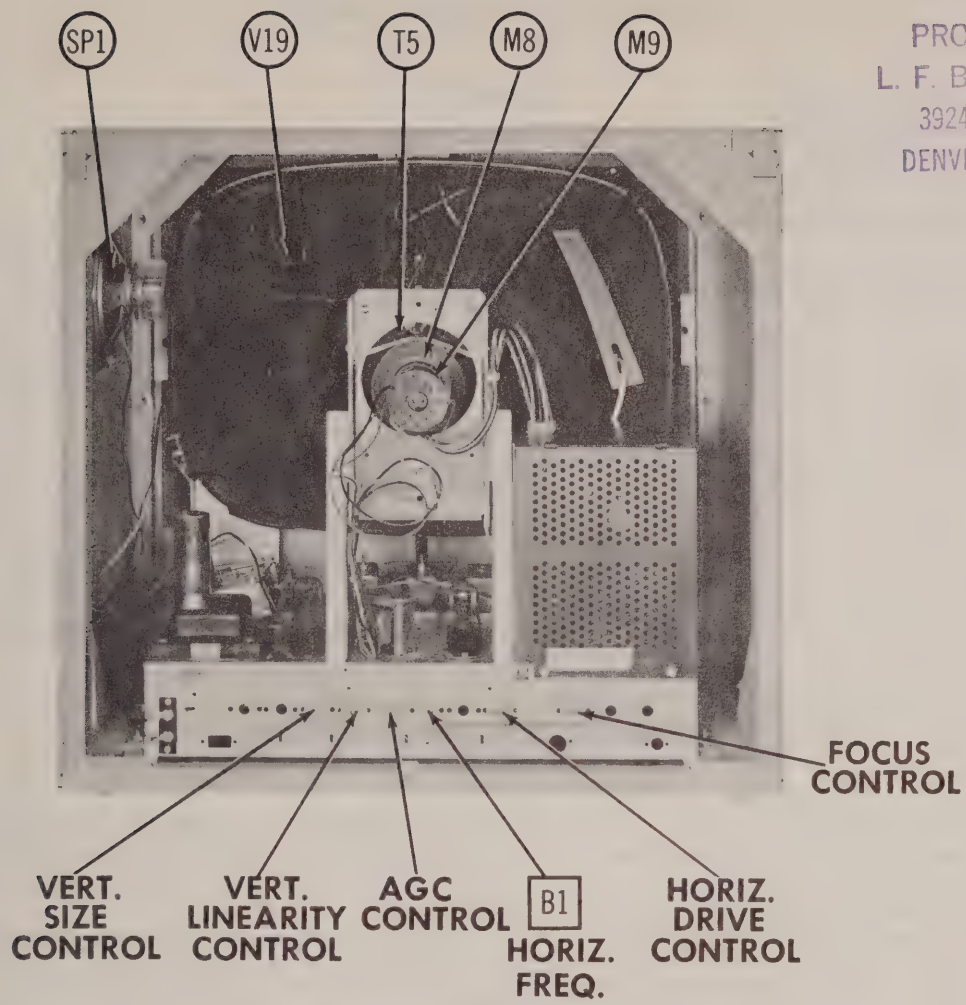

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal drive control clockwise as far as possible without the presence of vertical white lines or compression near the center of the picture.

Set the horizontal hold control to its mid-range position.

Adjust the horizontal fequency slug (B1) counter clockwise while switching on and off channel until the picture loses sync. Turn B1 clockwise and note the number of diagonal bars just before the picture pulls into sync. There should not be less than two bars if the horizontal section is operating normally. Continue turning B1 clockwise, while switching on and off channel, until sync is lost again, then turn B1 counter clockwise and note the point where picture pulls into sync. Turn B1 and additional half turn counter clockwise.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss Of High Voltage".

INSUFFICIENT SWEEP

Adjust R7. Check by substitution V16 and V17. Check R84, R7, R81, C69, T3, T5A and other associated components.

DRIVE LINES

Check by substitution V16 and V17. Check T3, T5A, R81, C69, C70 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V16 and V17. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V15, V16 and V17. Check C64 for open. Check T3, T5A and other associated components.

XMAS TREE EFFECT

Check by substitution V15, V16 and V17. Check T3 and T5A for internal arcing. Check L23, C65, C66, R79, R2 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V12 and V13. Check waveform W6.

If Satisfactory	If Unsatisfactory
Check T4, T5B, C59 and other associated components.	Check T2, R69, R6, C55, C57, C56 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V12 and V13. Check vertical size and vertical linearity controls for proper operation. If still unsatisfactory proceed as outlined under "Loss Of Sweep".

COMPRESSED AT BOTTOM

Check by substitution V12 and V13. Check T2, R5, R6, C56 and other associated components.

COMPRESSED AT TOP

Check by substitution V12 and V13. Check R6, C58, R70 and other associated components.

FOLDS

Check by substitution V12 and V13. Check C57, C58, R70 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Substitute V11. Check R56, R57, R59, R63, R62, C50, C51 and other associated components.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Check T2, C52. C54, R64, R65, R4 and other associated components.

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Check by substitution V14 and V15. Check C61, C62, C63, C64, C67, R77, R73, R74 and other associated components.

HORIZONTAL BENDING

Check by substitution V11, V14 and V15. Check M7 AGC switch. Check AFC network and other associated components.

VIDEO

LOSS OF VIDEO

Substitute V6. Check C38, C40, C36, R42, L18 and other associated components.

SOUND BARS (4.5 MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A4. Check video IF alignment.

POOR CONTRAST

Substitute V6. Check video crystal detector network. Check picture tube, contrast control, L20, L18, C40 and other associated components.

NEGATIVE PICTURE

Substitute V6. Check picture tube. Check video crystal detector network. Check video IF alignment.

SMEAR

Substitute V6. Check L16, L18, L20 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V7, V8, V9 and V10. Check stages V9 and V10 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C47, C48ABC, C49, R54AB, T6, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A3 for minimum buzz. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak Or No Sound".

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly, switch on volume control and T1. If filaments light check M1 and M2. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Check M1. Check B+ filter and decoupling network.

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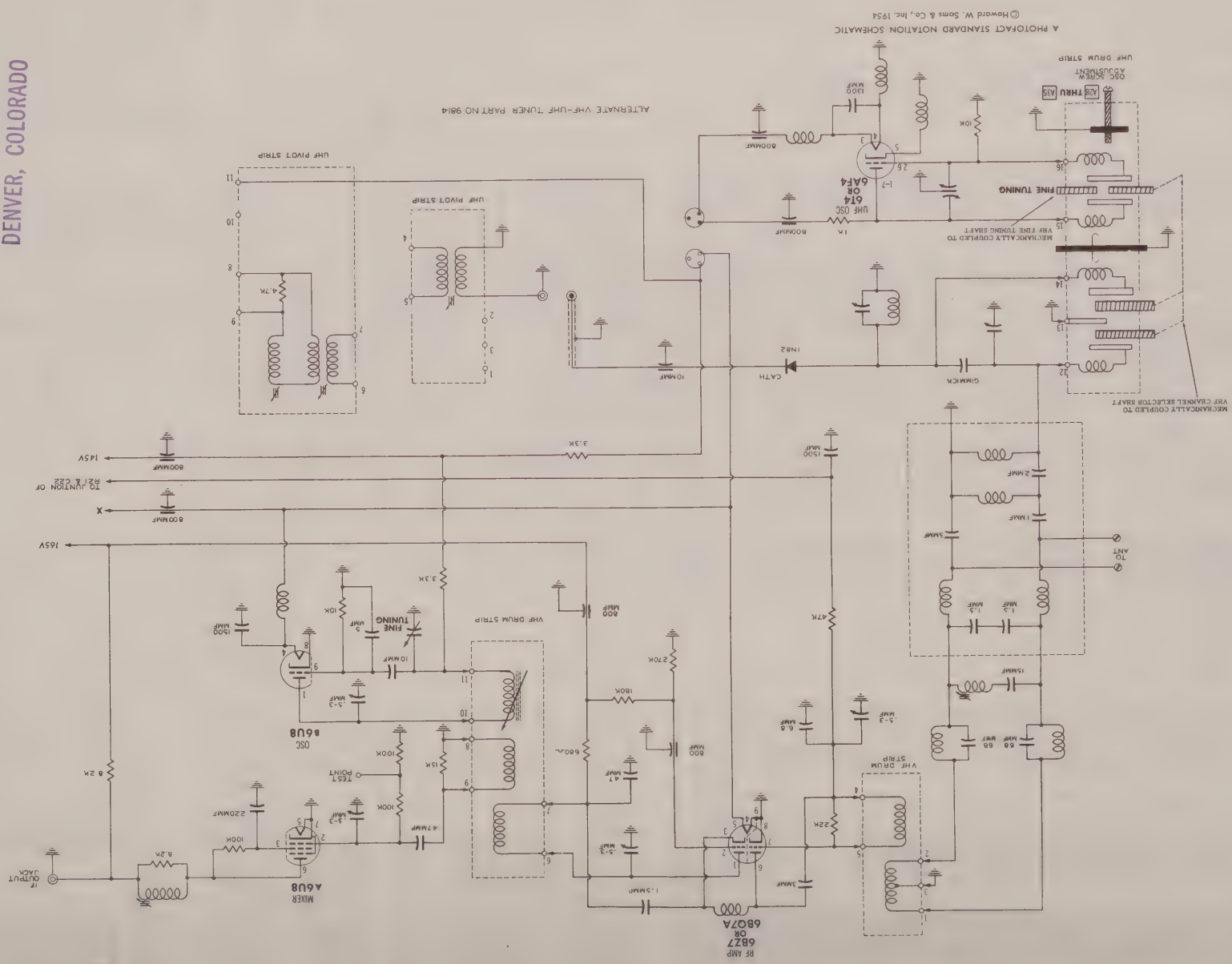
ALTERNATE TUNER SCHEMATIC



PROPERTY OF
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DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No	USE	REPLACEMENT DATA: HOFFMAN PART No.	STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	6BQ7A	6BQ7A	9AJ	
V2	Converter	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6AH6	6AH6	TBK	
V7	Sound IF Amplifier	6AU6	6AU6	TBK	
V8	Ratio Detector	6AL5	6AL5	6BT	
V9	AF Amplifier	6AV6	6AV6	TBT	
V10	Audio Output	6W6GT	6W6GT	7B	
V11	Sync Sep. -Sync Phase Inverter	12AU7	12AU7	9A	
V12	Vert. Oscillator	6C4	6C4	6BG	
V13	Vert. Output	6V6GT	6V6GT	7S	
V14	Horiz. AFC	6AL5	6AL5	6BT	
V15	Horiz. Mult.	6BN7GTA	6BD	9AM	
V16	Horiz. Output	6BQ6GT	6BQ6GT	8AM	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rectifier	1B3GT	1B3GT	3C	

CATHODE-RAY TUBE

ITEM No	REPLACEMENT DATA: HOFFMAN PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V19	21YP4	21YP4	21YP4	21YP4	21YP4	12L	① Aluminized
		21YP4A ①	21YP4A ①	21YP4A ①	21YP4A ①	12L	② Circuit changes
				21AFP4 ②		12M	necessary.
	17HP4	17EP4	17HP4	17HP4	17HP4	12L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲200	200	4272	E4C813						
B	▲150	200							TVL-3488	
C	▲150	200								
C2	5	50	4209	PR8150/4		BR550		TC30	TVA-1303	
C3	3-8				839-10			3139-01-IR5		
C4	3-8				839-10			3139-01-IR5		
C5	1000			EF-001	MFT-1000				503C-D1	
C6	3			S1SNP0	TCZ-3.3	Z007	NP0K-030	ZT-5533	5TCCB-V33	
C7	1000			EF-001	MFT-1000				503C-D1	
C8	.5-3				839-3		3115-01 0R5	CT565A		
C9	120			BPD-00012	D6-121	G044	GP2K-121	UC-5312	5GA-T12	
C10	1000			EF-001	MFT-1000				503C-D1	
C11	1000			EF-001	MFT-1000				503C-D1	
C12	47			BPD-000047	D6-470	G033	GP1K-470	UC-5447	5GA-Q47	
C13	.5-3				839-3		3115-01-0R5	CT565A		
C14	10			S1I0NP0	TCZ-10	Z018	NP0K-100	ZT-541	5TCCB-Q1	
C15	5									
C16	1500			BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C17	1500			BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C18	6.8			S1S.8NP0	TCZ-5.8	Z013	NP0K-6R8	ZT-5568	5TCCB-V68	
C19	1000			EF-001	MFT-1000				503C-D1	
C20	1000			EF-001	MFT-1000				503C-D1	
C21	82			S1S2N750	TCN-82	N040	N750L-820			
C22	.047	200	4147	P288-047	DF-503	CUB2S47		PT4147	2TM-S47	
C23	470		14050	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C24	1000		14031	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C25	820		14054	S1820	D6-821	K067	GP2K-821	DC-521	5GA-T82	
C26	1000		14031	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C27	1000		14031	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C28	820		14054	S1820	D6-821	K067	GP2K-821	DC-521	5GA-T82	
C29	1000		14031	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C30	820		14054	S1820	D6-821	K067	GP2K-821	DC-521	5GA-T82	
C31	1000		14031	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C32	1000		14031	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C33	1000		14031	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C34	10		14058	S1I0	D6-100	TP09	GP1K-100	UC-541	5GA-Q1	
C35	.47	200	4172	P288-47		CUB2P47		PT4047	2TM-P47	
C36	.1	200	4143	P288-1	DF-104	CUB2P1		PT4101	2TM-P1	
C37	5000		4029	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C38	5000		4029	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C39	30		4043							
C40	.1	400	4150	P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C41	2.2		4069	S12.2NP0	TCZ-2.2	TZ05	NP0K-2R2		5TCCB-V22	
C42	68		4046							
C43A	4000		4036	BPD-2X004	D6-402 ▲ D6-402 ▲	DK078	822-004	DCD-524	5HK-2D4	
B	4000									
C44	330		4065	S1330	D6-331	TP43	GP2K-331	UC-5333	5GA-T33	
C45	1000		14031	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C46	5000		4029	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C47	5000		4029	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C48A	.01									
B	250		†5600	†PA-112-4	†PC-81	†1137MP2	†1404-02		†Z-3	
C										
C49	.068	400	4160	P488-068		CUB4S68		PT4168	4TM-S68	
C50	.0022	400	4136	P688-0022	D6-222	CUB6D22	GP2-333-222	PT6222	6TM-D22	
C51	220		4084	BPD-00022	D6-221	G051	811-221	UC-5322	5GA-T22	
C52	.0047	400	4127	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C53	.0047	400	4127	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C54	.01	400	4134	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C55	5000		4029	BPD-005	DD-502	K080	C 005	DC-525	5HK-D5	
C56	.047	600	4133	P688 047	DF-503	CUB6S47		PT6147	6TM-S47	
C57	.047	600	4133	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C58	.1	600	4144	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C59	.033	600	14127	P688-033		PM6233		PT6133		
C60	.047	600	4133	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C61	.001	400	4175	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C62	.001	400	4175	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C63	.0047	400	4127	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	

CAPACITORS (cont)

ITEM No.	RATING: CAP.	VOLT	REPLACEMENT DATA: HOFFMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C64	.047	400	4148	P488-047	DF-503	CUB4S47		PT4147	4TM-S47	
C65	3900	500	4085	1464-004		BR5D39		MC9463	MS-24	
C66	470		4093	BPD-00047	D6-471	K060	801-471	UC-5347	5GA-T47	
C67	5000		4029	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C68	.001	400	4175	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C69	470		4093	BPD-00047	D6-471	K060	801-471	UC-5347	5GA-T47	
C70	5000		4029	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C71	.22	400	4131	P488-22		CUB4P22		PT4022	4TM-P22	
C72	.047	600	4133	P688-047		CUB6S47		PT6147	6TM-S47	
C73	.1	600	4144	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C74	47	3000	14048	HVD30-000047	DD30-470		3KV-470		30GA-Q47	
C75	.0047	400	4127	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	Note 1

Note 1. Used in Ch. 302 only.
† Items C48A, C48B, C48C, R54A and R54B are combined in one unit. When replacing items separately, C48B and C48C should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	H4910	*QJ-527	RTV-463			Contrast -Panel
B	500KΩ	½						Volume & switch-Rear
								Tapped ⑤ 150KΩ
R2A	25KΩ	½	H-4933	Q11-120	A47-25K-S	AB-26	U-29	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
R3A	5 Meg	½	H-4916	Q11-141	A47-150K-S	AB-87	U-87	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A
R4A	1.2Meg with 500KΩ stop	½	H-4922	Q11-138	A47-750-S	AB-69	U-155	Vert. Hold -Note 1
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R4A
R5A	5 Meg with 1Meg stop	½	H-4930	Q11-141	A47-4Meg-S	AB-87	U-87	Vert. size-Note 2
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	150KΩ	½	H4909	Q11-129	A47-50K-S	AB-46	U-43	Vert. Linearity
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R6A
R7A	25KΩ	½	H-4932	Q11-120	A47-25K-S	AB-26	U-29	Horiz. Drive
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	1.5Meg	½	H-4939	Q11-138	A47-1.5Meg-S	AB-75	U-155	Focus
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R8A
R9	1 Meg	½						Tone-Note 3

* CONCENTRIKIT EQUIVALENT KIT K-2 BASE ELEMENTS & SHAFTS B11-103 & P1-204 (Panel)

Note 1. Connect a 510KΩ resistor in series with the left hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Note 2. Connect a 1 Meg resistor in series with the left hand terminal of the control and the lead connecting to the same terminal of the original control (control viewed from shaft end, terminals down).
Note 3. Used on chassis 302 only.

RESISTORS

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	NOTES
R10	15KΩ	½		BTS-15K	
R11	47KΩ	½		BTS-47K	
R12	100KΩ	½		BTS-100K	
R13	270KΩ	½		BTS-270K	
R14	180KΩ	½		BTS-180K	
R15	470Ω	½		BTS-470	
R16	15KΩ	½		BTS-15K	
R17	220KΩ	½		BTS-220K	
R18	15KΩ	½		BTS-15K	
R19	10KΩ	½		BTS-10K	
R20	4700Ω	½		BTS-4700	
R21	100KΩ	½	4571	BTS-100K	
R22	1.5Meg	½	4605	BTS-1.5Meg	
R23	390KΩ	½	4633	BTS-390K	
R24	4700Ω	½	4576	BTS-4700	
R25	1000Ω	½	4542	BTS-1000	
R26	47KΩ	½	4559	BTS-47K	
R27	47Ω	½	4639	BTS-47	
R28	1000Ω	½	4542	BTS-1000	
R29	22KΩ	½	4628	BTS-22K	
R30	1000Ω	½	4542	BTS-1000	
R31	47Ω	½	4639	BTS-47	
R32	1000Ω	½	4542	BTS-1000	
R33	47KΩ	½	4559	BTS 47K	
R34	150Ω	½	4616	BTS-150	
R35	1000Ω	½	4542	BTS-1000	
R36	1000Ω	2	4897	BTS-1000	
R37	2200Ω	½	4650	BTS-2200	
R38	3300Ω	½	4607	BTS-3300	
R39	2.2Meg	½	4606	BTS-2.2Meg	
R40	1.5 Meg	½	4607	BTS-1.5 Meg	
R41	560KΩ	½	4590	BTS-560K	
R42	4700Ω	2	24538		
R43	180KΩ	½	4634	BTS-180K	
R44	100KΩ	½	4571	BTS-100K	Note 1
R45	22KΩ	½	4628	BTS-22K	
R46	1500Ω	½	4630	BTS-1500	
R47	150Ω	½	4616	BTS-150	
R48	5600Ω	½	4557	BTS-5600	
R49	27KΩ	½	4663	BTS-270	
R50	33KΩ	½	4586	BTS-33K	
R51	10KΩ	½	4597	BTS-10K	

ITEM No.	RATING: OHMS	WATT	REPLACEMENT DATA: HOFFMAN PART No.	IRC PART No.	NOTES
R52	10KΩ	½	4597	BTS-10K	
R53	10 Meg	½	4605	BTS-10 Meg	
R54A	220KΩ	½	† 5600	BTS-220K	
B	470KΩ	½		BTS-470K	
R55	470Ω	½	4531	BTA-470	
R56	10KΩ	½	4597	BTS-10K	
R57	470KΩ	½	4622	BTS-470K	
R58	4.7Meg	½	4544	BTS-4.7Meg	
R59	470KΩ	½	4622	BTS-470K	
R60	18000 5%	½	24517	BTS-18000 5%	
R61	2200Ω	½	4650	BTS-2200	
R62	3900Ω	½	4527	BTS-3900	
R63	30000Ω 5%	½	34538		
R64	47KΩ	½	4559	BTS-47K	
R65	10KΩ	½	4597	BTS-10K	
R66	470KΩ	½	4622	BTS-470K	
R67	680KΩ	½		BTS-680K	
R68	68KΩ	½		BTS-68K	Note 1
R69	33KΩ	½		BTS-33K	
R70	6.8Meg	½	4604	BTS-6.8Meg	
R71	100KΩ	½	4571	BTS-100K	
R72	1000Ω	½	4559	BTS-1000	
R73	100KΩ	½	4571	BTS-100K	
R74	100KΩ	½	4571	BTS 100K	
R75	4.7Meg	½	4544	BTS 4.7Meg	
R76	470KΩ	½	4622	BTS-470K	
R77	15000 5%	½	4610	BTS-1500 5%	
R78	8200Ω	½	4651	BTS-8200	
R79	82KΩ	½	24670	BTS-82K	Note 2
R80	82KΩ	½	24670	BTS-82K	
R81	5600Ω	½	4629	BTS-5600	
R82	470KΩ	½	4622	BTS-470K	
R83	39KΩ	½	24636	BTS 39K	
R84	18KΩ	2	24520	BTS-1800	
R85	4700Ω	½	4576	BTS-4700	
R86	2.2Ω	½	4735		
R87	150Ω	2	14509		
R88	560Ω	2	14872		
R89	5Ω	2			
R90	330KΩ	½		BTS-330K	
R91	18KΩ	½		BTS-18K	Note 1

Note 1. Not used in all models.
Note 2. Some models may use a 100KΩ resistor in this application.
† Items R54A, R54B, C48A, C48B, C48C are combined in one unit.

TRANSFORMER (POWER)

ITEM No	RATING: PRI	SEC 1	SEC 2	REPLACEMENT DATA: HOFFMAN PART No	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No
T1	117VAC ▲1.42A	158VAC 240ADC tap at 6.3VAC ▲7.8A	6.3VAC ▲1.2A	5048-2						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: HOFFMAN PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No
T2	Vert. Osc. Trans.	5176						
T3	Horiz. Output Trans.	5197	A-8223 *		D-24 *		FB414*	FLY-8 *
T4	Vert. Output Trans.	5106	A-8140③④	A-3081④⑤	A-110X ⑥		Z1805④⑥	26957④⑥
		5194 ①						
T5A	Yoke-Horiz. (.65MH)	5198-1①	DY-10 ⑦	MDF-74 ⑦	Y-20①	214D1①	DF803 ⑦	Y-11 ⑦
B	Vert. (3.8MH)	99698 ⑦						

① Alternate vertical output transformer.
② Drill new mounting holes.
③ Connect as auto. transformers.
④ Drill one new mounting hole.
⑤ Use 50 to 1 turns ratio.
⑥ Includes capacitor C74 and resistor R72.
⑦ Alternate deflection yoke.
⑧ Use original yoke network.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Stancor Replacement Connections	Merit Replacement Connections	Triad Replacement Connections	RCA Replacement Connections	Halldorson Replacement Connections	Thordarson Replacement Connections
	10	4		Hi-Volt Rect Plate Lead		3	3
	7	5		9		2	2
	4	2		8 & 7		8	8
	T	6		T		7	7
	3	6		3		6	6
	1	1		1		5	5

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: HOFFMAN PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T6	2 2KΩ	3.3Ω	5178	A-3876	A-2928	S-2X	Z1001	24859	

SPEAKER

ITEM No.	RATINGS: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: HOFFMAN PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1	5 1/4"	PM	3.3Ω	9091	52574	52A1	① Use in console models.
	10"	PM	3.3Ω	①	10711	10A31	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	SEC.	REPLACEMENT DATA: HOFFMAN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	IF Trap	0Ω						Coil wound on 68MMF capacitor
L2	IF Trap	0Ω						Coil wound on 68MMF capacitor
L3	Ant. Coils	0ΩCT	0Ω					
L4	Fil. Choke	0Ω						
L5	IF Trap	.8Ω						
L6	Neut. Coil	0Ω						
L7	RF. Mixer grid, Osc. Coils	0Ω						
L8	Fil. Choke	0Ω						
L9	Feedback Coil	1.3Ω						
L10	RF Coil	0Ω						
L11	Conv. Plate Coil	0Ω						
L12	1st Video IF	.1Ω		5562	17-4524 *		6219 *	
L13	2nd Video IF	.1Ω	.1Ω	5591			6318	Includes 47.25MC trap
L14	3rd Video IF	.1Ω	.1Ω	5591	17-4531		6317	Includes 41.25MC trap
L15	4th Video IF	.2Ω	.1Ω	5543	17-4531 ■		6234 ▲	
L16	Series Peaking Coil	6.5Ω		5448	19-3180	TV-184	6180	172 Microhenries
L17	Shunt Peaking Coil	8.5Ω		5449	19-3300		6648	335 Microhenries
L18	Series Peaking Coil	9.5Ω		5450	19-4413 ▲	TV-188 †	6648 †	413 Microhenries; wound on 8.2KΩ resistor
L19	4.5MC Trap			5453	20-1004	TV-151	1470	
L20	Shunt Peaking Coil	2Ω 4.5Ω		5451	19-4121 ††	TV-181 ♦	6177 ♦	106 Microhenries; wound on 6.8KΩ resistor
L21	Sound IF	1.1Ω		5454	17-3400	TV-151	1469	
L22	Ratio Det.	3.8Ω	.80CT	5443	17-1033	TV-110	1468	Tertiary winding. 6Ω
L33	Horiz. Osc.	90Ω		5447	19-1576	TV-163	6310	

† Use one winding only.
■ Deluxe trap winding & disconnect 15KΩ resistor.
▲ Use adaptor plate.
† Parallel with 6.2KΩ resistor.
†† Wound on 6.8KΩ resistor.
♦ Parallel with 6.8KΩ resistor.

HOFFMAN MODELS 7B157, U, 7M156, U, 21B154, U, 21B164, U, 21B167, U, 21B337 P,U, 21M153, U, 21M166, U, 21M336P, U, 21P168, U, 21P338P, U. (Ch. 301-17, -21, 302)

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	HOFFMAN PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L24	.240ADC	40Ω	1.2HY	5195	C-2326 ①	C-2996 ①	C-17X ①	C5037 ①	26C44 ①

① Drill one new mounting hole.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	HOFFMAN PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	SELETRON PART No.	
M1	.240A	9802	1187A	RS-300	6S300	308		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			HOFFMAN PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG P/T	1A 250V			318001 (1A-3AG P/T)		GJV1	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		HOFFMAN PART No.	SYLVANIA PART No.	FEDERAL PART No.	
M3	1N60	9075	1N60 or 1N132	1N60 or 1N64A	Video Det.

MISCELLANEOUS

ITEM No.	PART NAME	HOFFMAN PART No.	NOTES
M4	Dial light		Used on "U" models only.
M5	Tuner	9786	VHF
	Tuner	9814	UHF & VHF
M6	Switch	4890	TV-phono (used in chassis 302 only)
M7	Switch	6042	AGC
M8	Centering magnet	9722	
M9	Ion trap	9702	

TROUBLE SHOOTING AIDS (cont)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V15, V16, V17 and V18. Check waveform W13.

If S tisfactory	If Unsatisfactory
Check T3, T5A, C71, C72, C73, R85, R84 and other associated components.	Check C70, C66, C64, C65, R80, R78, R7, L23 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V16 and V17. Check M1. Check R84, C68, C70 and other associated components.

BLOOMING

Check by substitution V16, V17 and V18. Check M1. Check T3, T5A and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss Of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak Or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5 and V6. Check components associated with video IF stages.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

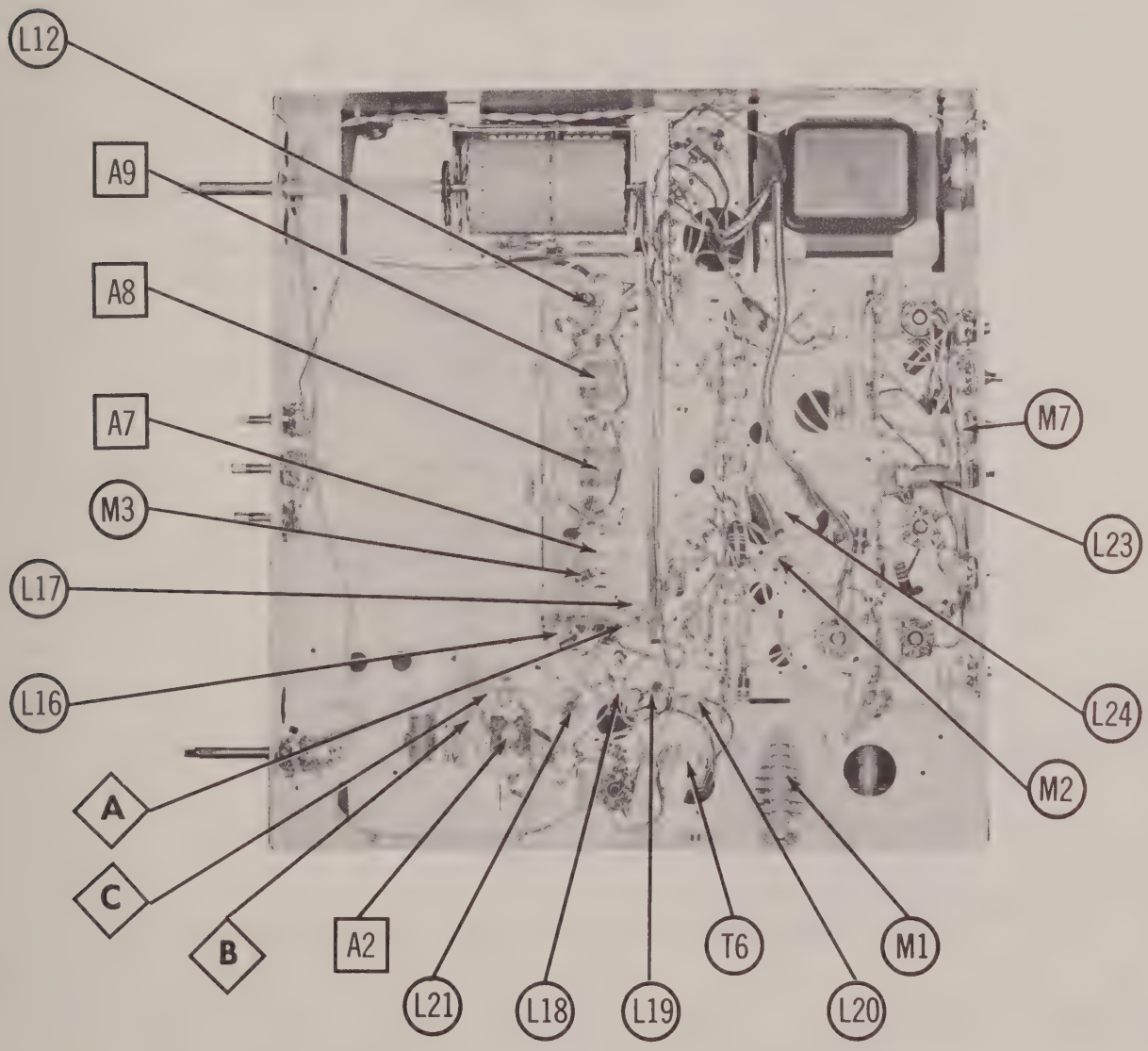
KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF Tuner Oscillator Circuit may be accomplished by removal of the Channel Selector and Fine Tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the Channel Selector shaft.

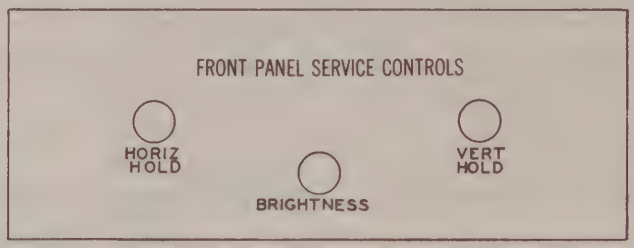
PICTURE TUBE SAFETY GLASS CLEANING

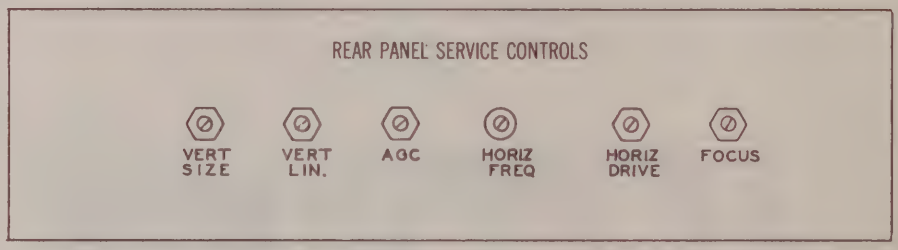
For picture tube safety Glass cleaning, it is necessary to remove chassis. (See disassembly instructions.)

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions.)

SERVICE ADJUSTMENT LOCATION





HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the Horiz. Oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the Horiz. Hold Control at the center of its range and adjust the Horiz. Freq. slug (L23) until, picture synchronizes horizontally. (For location see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector Buzz, adjust the Ratio Detector Secondary (L22) located on top of chassis. (See tube placement chart.)

FUSES

One fuse is used for Low Voltage protection. (For location see Tube Placement Chart.)

CENTERING

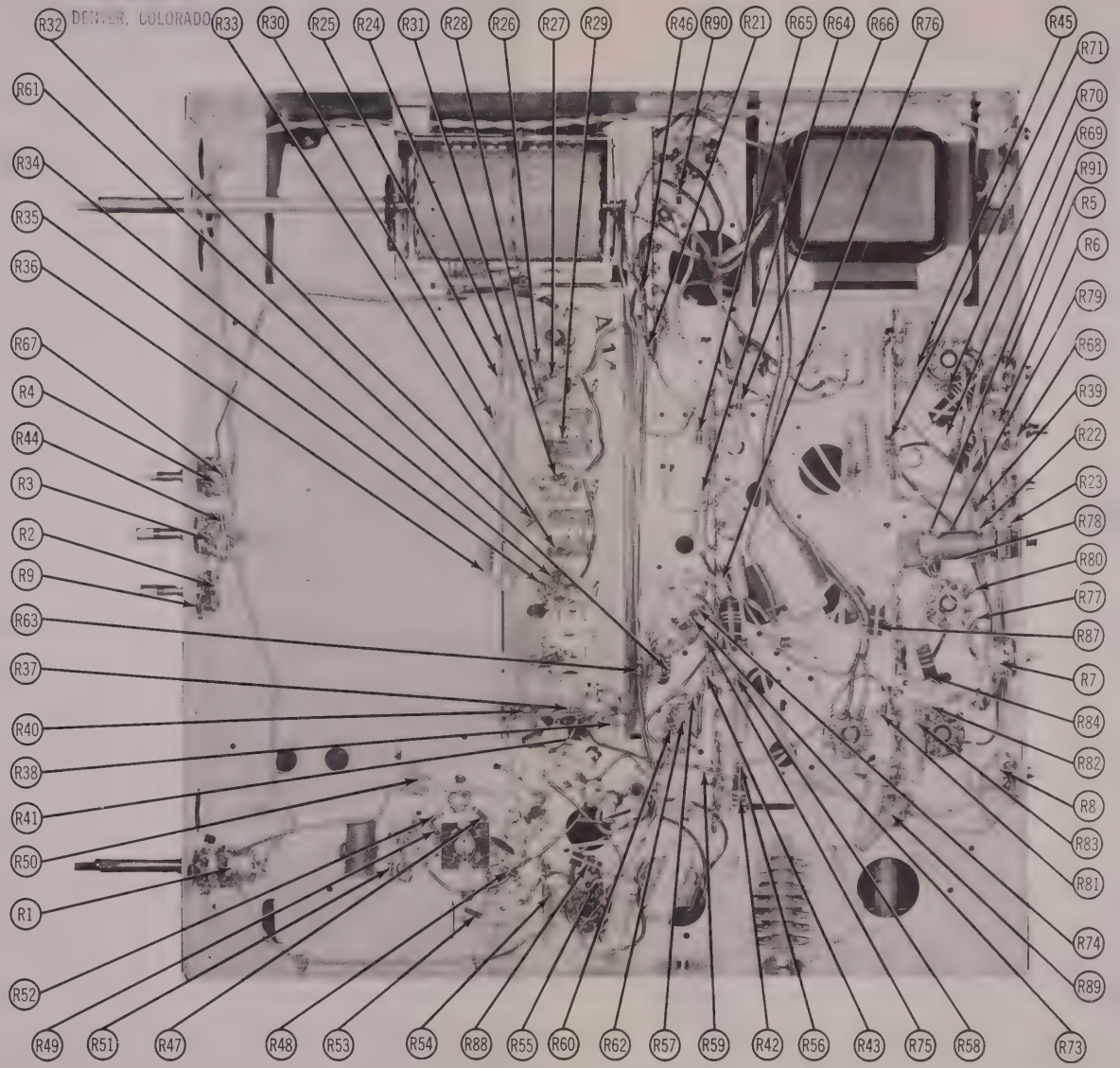
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Remove 7 wood screws and 1 metal screw. Remove rear cover.
3. Disconnect speaker leads. Remove 2 speaker nuts. Remove speaker.
4. Remove 4 chassis bolts. Remove chassis.

Note:
Underside of chassis may be exposed for service by removing 1 screw and bracket from lower rear of cabinet and sliding bottom panel out.

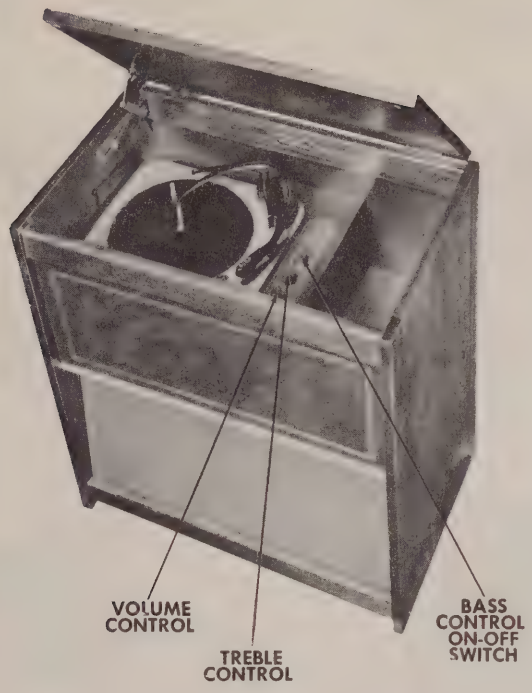
PROPERTY OF
L. F. BLANKENSHIP
3901 MEADE ST.
DENVER, COLORADO



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

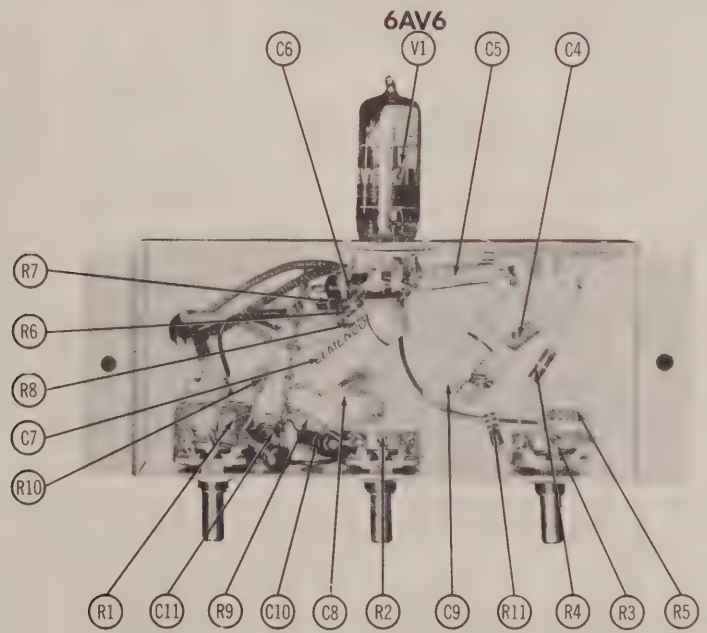
PROPERTY OF
L. F. BLANKENSHIP
3074 MEADE ST
DENVER COLORADO

MAGNAVOX MODEL
CP251M (AMP-128A, B, AMP-129)



TRADE NAME	Magnavox Model CP251 (Consisting of AMP-128A, B, AMP-129)
MANUFACTURER	Magnavox Co., 2131 Bueter Rd., Fort Wayne, Indiana
TYPE SET	AC Operated Audio Amplifier Unit With 3 Speed Automatic Record Changer
TUBES (Eight)	Types 6AV6 Pre-Amp., 12AX7 AF Amp.-Phase Inv., (4) 6V6GT Audio Output, (2) 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 1.04 Amp. @ 117 Volts AC

RECORD CHANGER UNIT - MAGNAVOX MODEL 521736



BOTTOM VIEW—MODEL AMP—129

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

MAGNAVOX MODEL CP251

ITEM No.	USE	REPLACEMENT DATA: MAGNAVOX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Pre Amplifier	6AV6	6AV6	7BT	
V2	AF Amp-Phase Inv.	12AX7	12AX7	9A	
V3	Audio Output	6V6GT	6V6GT	7S	
V4	Audio Output	6V6GT	6V6GT	7S	
V5	Audio Output	6V6GT	6V6GT	7S	
V6	Audio Output	6V6GT	6V6GT	7S	
V7	Rectifier	5Y3GT	5Y3GT	5T	
V8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■30	475	270023-2	AFH2-52		B041		FP376.3	TVL-3778	
B	▲10	475								
C2A	■30	475	270023-2	AFH2-52		B041		FP376.3	TVL-3778	
B	▲10	475								
C3	20	25	270027-2	PRS25/25		BR202		TC26	TVA-1205	
C4	47		250207-11	SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C5	220	500	250159-86	1468-00025	D6-221	5W5T22	GP2K-221	MC240	1FM-325	
C6	.0047	600	250201-5	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C7	.01	600	250175-2	P688-01	D6-103	CUB6S1	GP2-333-103	PT6I1	6TM-S1	
C8	.0015	600	250201-2	P688-0015	D6-152	CUB6D15	GP2L-152	PT6215	6TM-D15	
C9	.001	600	250201-1	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C10	.0047	600	250201-5	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C11	.0033	600	250201-4	P688-0033	D6-332	CUB6D33	GP2-333-332	PT6233	6TM-D33	
C12	220		250207-48	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C13	.1	600	250201-13	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C14	.1	600	250201-13	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C15	.0022	600	250201-3	P688-0022	D6-222	CUB6D22	GP2-333-222	PT6222	6TM-D22	
C16	10000	1000	250219-2		DD16-103				10HK-S1	
C17	10000	1000	250219-2		DD16-103				10HK-S1	
C18	1.0	100		484-1.0		CUB2W1		PT41	2TM-M1	Note 1
C19	1.0	100		484-1.0		CUB2W1		PT41	2TM-M1	Note 1
C20	1.0	100		484-1.0		CUB2W1		PT41	2TM-M1	Note 2
C21	1.0	100		484-1.0		CUB2W1		PT41	2TM-M1	Note 2

Note 1. When C18 is 2.0MFD, C19 is not used.
Note 2. When C20 is 2.0MFD, C21 is not used.

CONTROLS

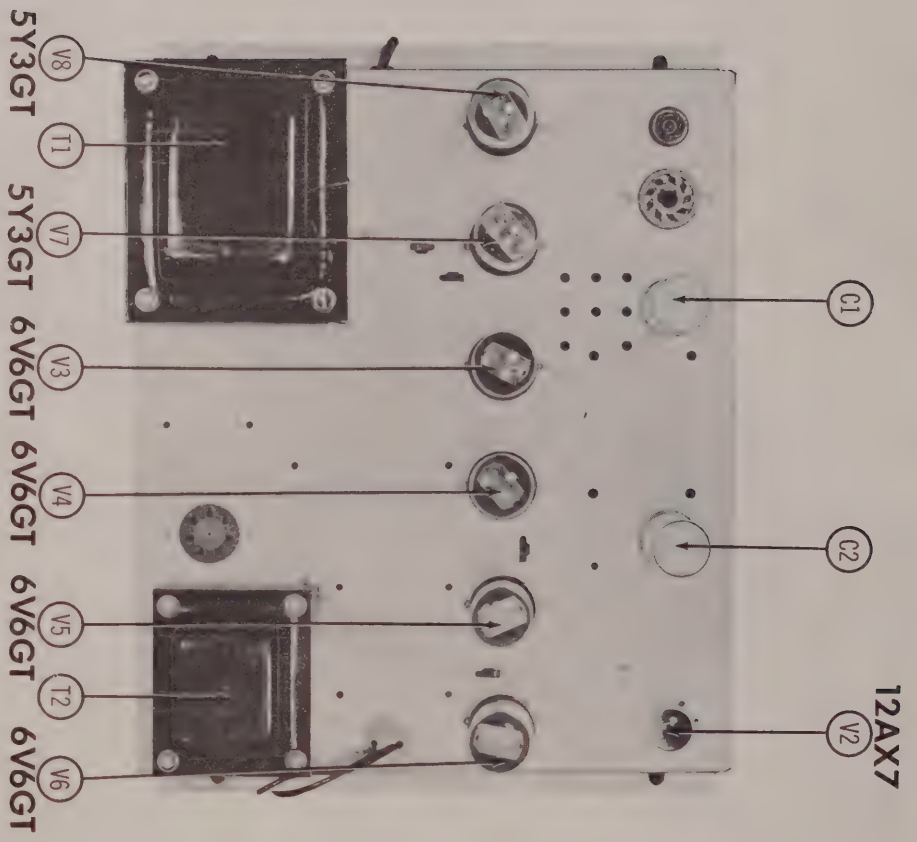
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MAGNAVOX PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg	½	D220073G18	Q13-137	A47-1Meg-Z	B-70-S	U-53	Bass
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	Not Req.	US-26	Attach to R1A
R2	1 Meg	½	D22072G21	Q14-137		B-68		Treble
R3A	1 Meg	½	D220072G18	Q13-137	A47-1Meg-Z	B-70	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MAGNAVOX PART No.	IRC PART No.	NOTES
R4	1 Meg	½	230104-98	BTS-1 Meg	
R5	220KΩ	½	230104-90	BTS-220K	
R6	3300Ω	½	230104-68	BTS-3300	
R9	1500Ω	½	230104-64	BTS-1500	
R8	100KΩ	½	230104-86	BTS-100K	
R9	220KΩ	½	230104-90	BTS-220K	
R10	47KΩ	½	230104-82	BTS-47K	
R11	470KΩ	½	230104-94	BTS-470K	
R12	470KΩ	½	230104-94	BTS-470K	
R13	220Ω	½	230104-54	BTS-220	
R14	3300Ω	½	239104-68	BTS-3300	
R15	8200Ω	½	230104-73	BTS-8200	
R16	470KΩ	½	230104-94	BTS-470K	
R17	470KΩ	½	230104-94	BTS-470K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MAGNAVOX PART No.	IRC PART No.	NOTES
R18	20KΩ	½	230094-190	BTS-20K	
R19	220KΩ	½	230104-90	BTS-220K	
R20	100Ω	½	230104-50	BTS-100	
R21	100Ω	½	230104-50	BTS-100	
R22	100Ω	½	230104-50	BTS-100	
R23	2700Ω	½	230104-67	BTS-2700	
R24	100Ω	½	230104-50	BTS-100	
R25	220KΩ	½	230104-90	BTS-220K	
R26	100KΩ	1	230105-86	BTA-100K	
R27	360Ω	15	240021-39		
R28	125Ω	10	240021-11	1 3/4A-125	
R29	100Ω	½	230104-50	BTS-100	
R30	100Ω	½	230104-50	BTS-100	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MAGNAVOX PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @ 1.04A	710VCT .141ADC	5VAC @ 6A	6.3VAC @ .34A SEC. 4 6.3VAC @ 2.24A	300037-1		P-3054 ①			

① Use highest voltage secondary.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T2	3.1KΩ	3Ω tap @ 1.5Ω	300024-1						

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MAGNAVOX PART No.	JENSEN PART No.	QUAM PART No.	
SP1	12"	PM	6Ω	583641-1			
SP2	12"	PM	6Ω	383660-1			
SP3	5"	PM	3.2Ω	580038-1			
SP4	5"	PM	3.2Ω	580038-1			

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MAGNAVOX PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	RF Choke	0Ω		360575-1				
L2	RF Choke	0Ω		360575-1				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	MAGNAVOX PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L3	.14A	51Ω	1HY	320041-2	C2327	C-2996 ①	C-21X ①	C5040	T-26C41

① Drill one new mounting hole.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA						REMARKS
	MAGNAVOX PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	560151-5							

PHONO NEEDLE

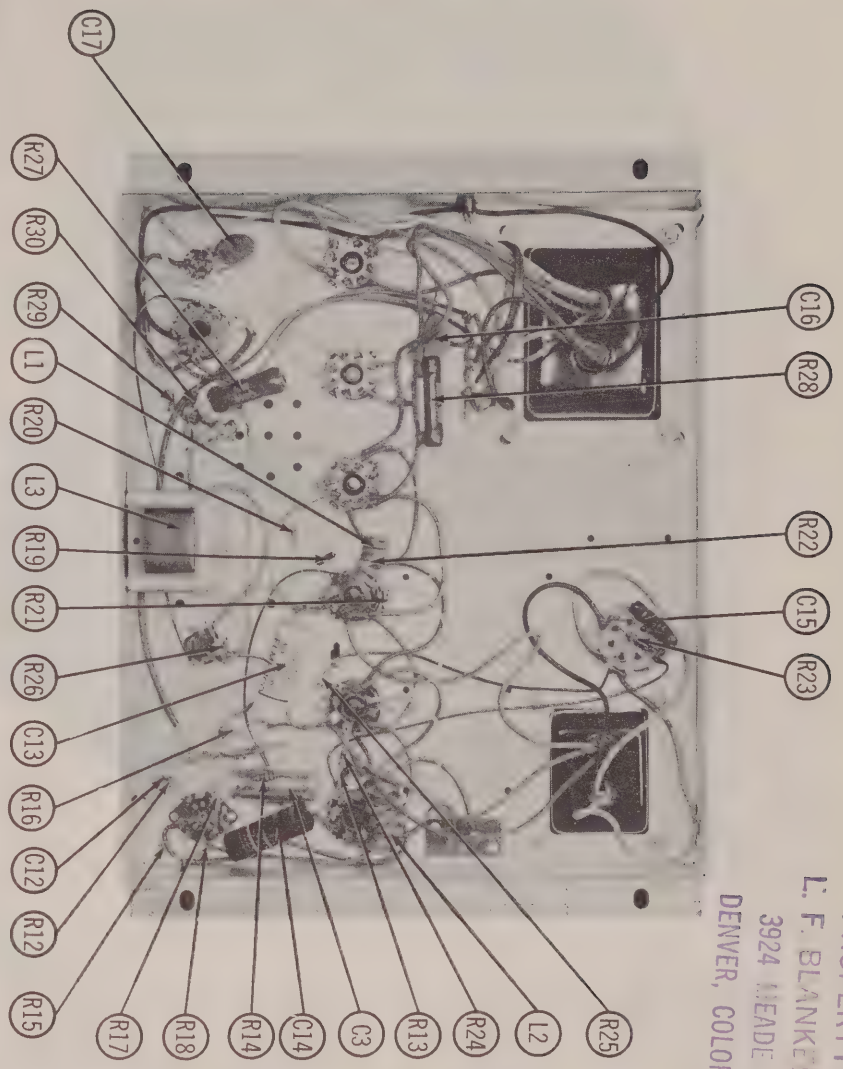
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	MAGNAVOX PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M2	560153-2	*M-47	*AC-351	*W-52TPA	* Metal

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M3	Dial Light		#44 Bayonet

CHASSIS—BOTTOM VIEW



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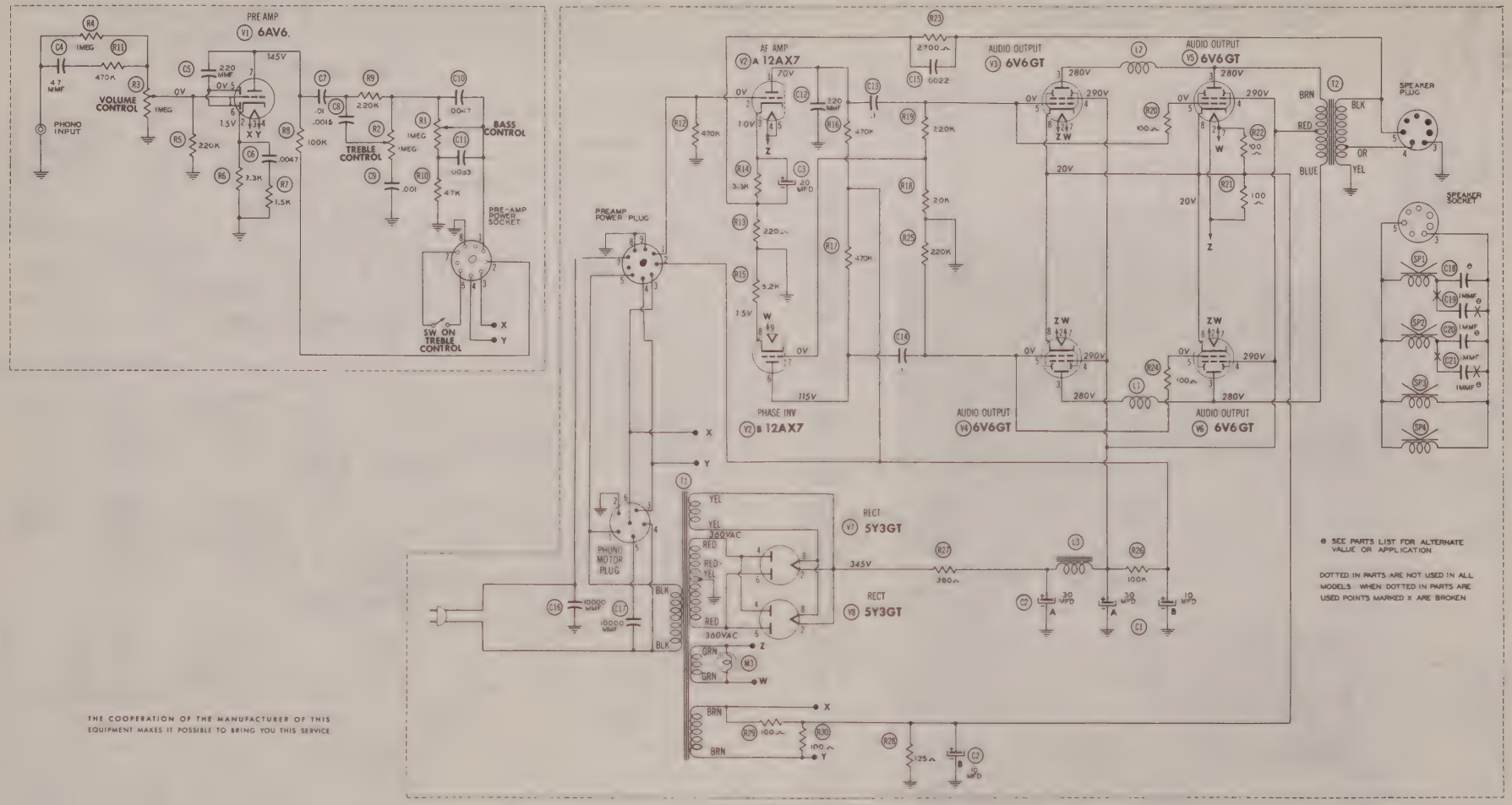
MAGNAVOX
MODEL CP251



* SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN

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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AV6	220KΩ	3.3KΩ	175Ω	175Ω	0Ω	0Ω	†200KΩ		
V 2	12AX7	†570KΩ	470KΩ	3.5KΩ	175Ω	175Ω	†570KΩ	20KΩ	8.2KΩ	175Ω
V 3	6V6GT	INF	175Ω	515Ω	415Ω	240KΩ	20KΩ	175Ω	125Ω	
V 4	6V6GT	INF	175Ω	515Ω	415Ω	240KΩ	INF	175Ω	125Ω	
V 5	6V6GT	INF	175Ω	515Ω	415Ω	220KΩ	220Ω	157Ω	125Ω	
V 6	6V6GT	INF	175Ω	515Ω	415Ω	220KΩ	INF	175Ω	125Ω	
V 7	5Y3GT	INF	140KΩ	INF	24Ω	INF	23Ω	INF	140KΩ	
V 8	5Y3GT	INF	140KΩ	INF	24Ω	INF	23Ω	INF	140KΩ	

† MEASURED FROM PIN 8 OF V8

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings
6. All controls at minimum, proper output load connected

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MASCO
MODEL TVB (VHF Booster)

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MASCO
MODEL TVB (VHF Booster)

HI-OFF-LO
SWITCH

MASCO
MODEL TVB (VHF Booster)

TRADE NAME	Masco Model TVB
MANUFACTURER	Mark Simpson Mfg. Co., Inc, 32-28 49th. St., Long Island City 3, N.Y.
TYPE SET	AC Operated All Channel VHF Television Booster Amplifier
TUBES (Two)	Types 6J6 RF Amp., 6BK7A (or) 6BZ7 RF Amp.
POWER SUPPLY	110-120 Volts AC-50/60 Cycles RATING .24 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

THIS UNIT HAS BEEN PROPERLY ALIGNED AT THE FACTORY AND IS VERY STABLE. IF ALIGNMENT BECOMES NECESSARY, THE ENTIRE UNIT SHOULD BE RETURNED TO THE FACTORY.

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PARTS LIST AND DESCRIPTIONS

MASCO MODEL TVB

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6J6	6J6	7BF	
V2A	RF Amplifier	6BK7A	6BK7A	9AJ	
B	RF Amplifier	6BZ7	6BZ7	9AJ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	20	250		PRS250/20		BR2025		TC55	TVA-1508	Note 1
C2	1.2						NP0K-1R2			
C3	1.2						NP0K-1R2			
C4	1.5			S11.5NP0	TCZ-1.5	TZ04	NP0K-1R5	ZT-5515	5TCCB-V15	
C5	1.2						NP0K-1R2			
C6	1.2						NP0K-1R2			
C7	.82						NP0K-R82			
C8	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES	ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MASCO PART No.	IRC PART No.			OHMS	WATT	MASCO PART No.	IRC PART No.	
R1	47Ω	½		BTS-47		R3	1000Ω	½		BTS-1000	
R2	47Ω	½		BTS-47							

TRANSFORMER (POWER)

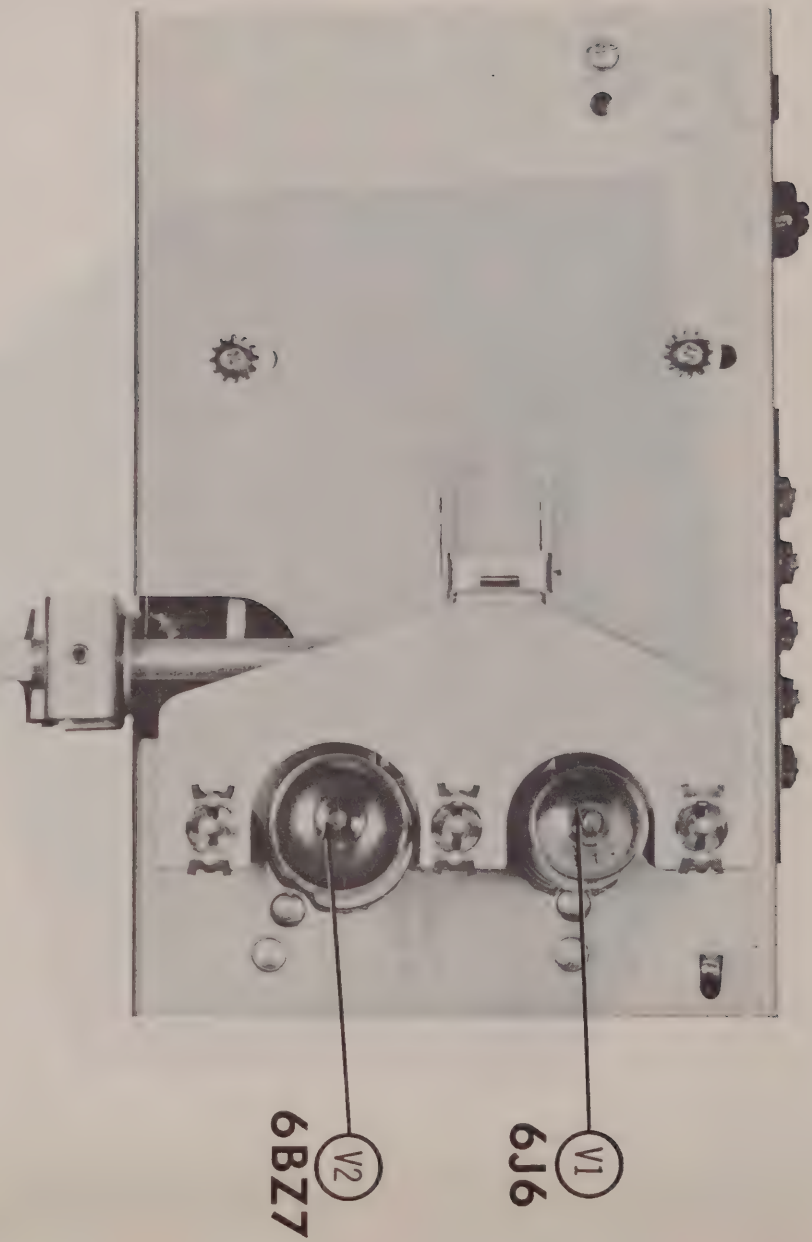
ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @ .24A	120VAC .043ADC Tap @ 6.3VAC @ .9A			PF-9		P-3054 ①	R-30X ①	P9102 ①	T-26R32①

① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MASCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	VHF Ant. Booster Coil	0Ω	0Ω (tapped)	1604				
L2	VHF Interstage Booster Coil	0Ω(tapped)	0Ω(tapped)	1359				
L3	VHF Coupling	0Ω		1355				
L4	VHF Coupling	0Ω		1355				
L5	VHF Output Booster Coil	0Ω(tapped)		1604				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

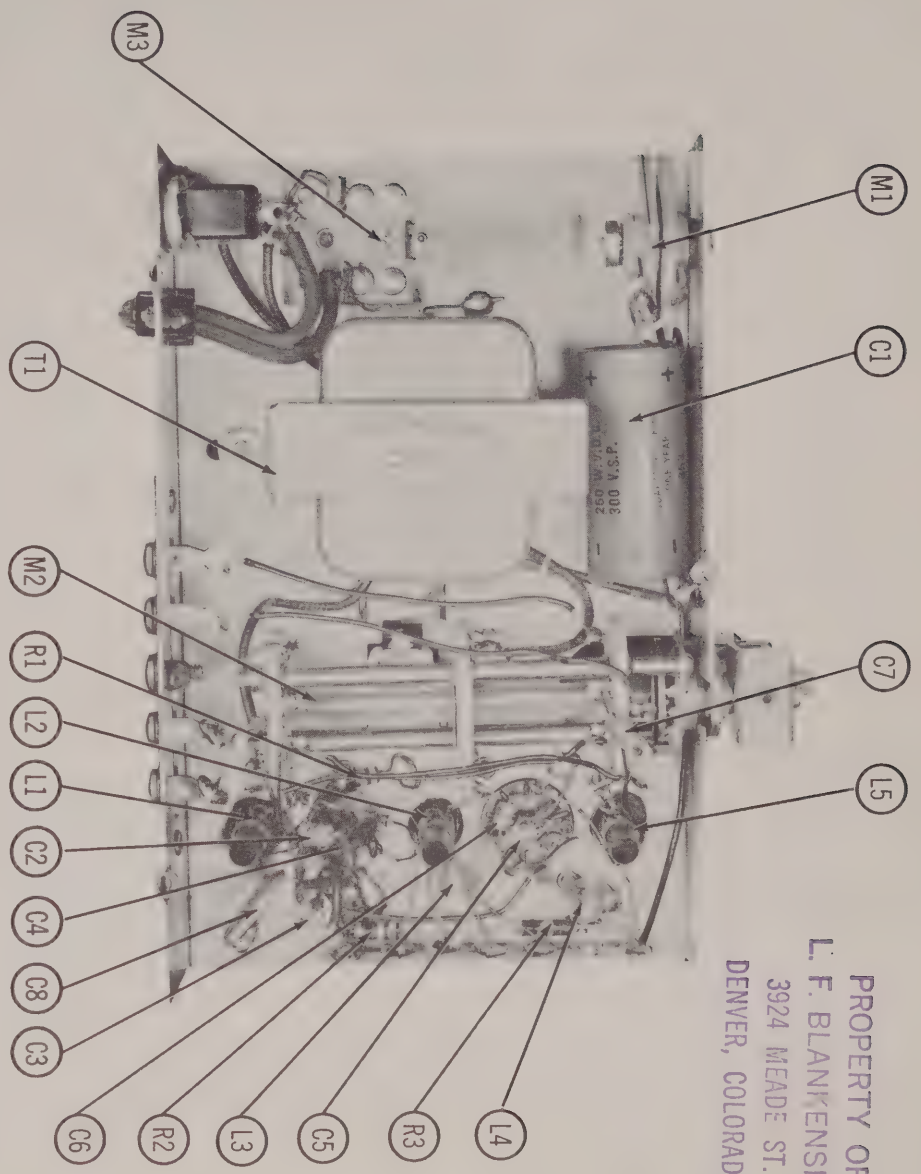
SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	MASCO PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	SELETRON PART No.	
M1	.043A		1002A	RS65	6S65	65	8J1	

MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
M2	Switch	27-R-2165	Band
M3	Relay		Thermal

CHASSIS—BOTTOM VIEW



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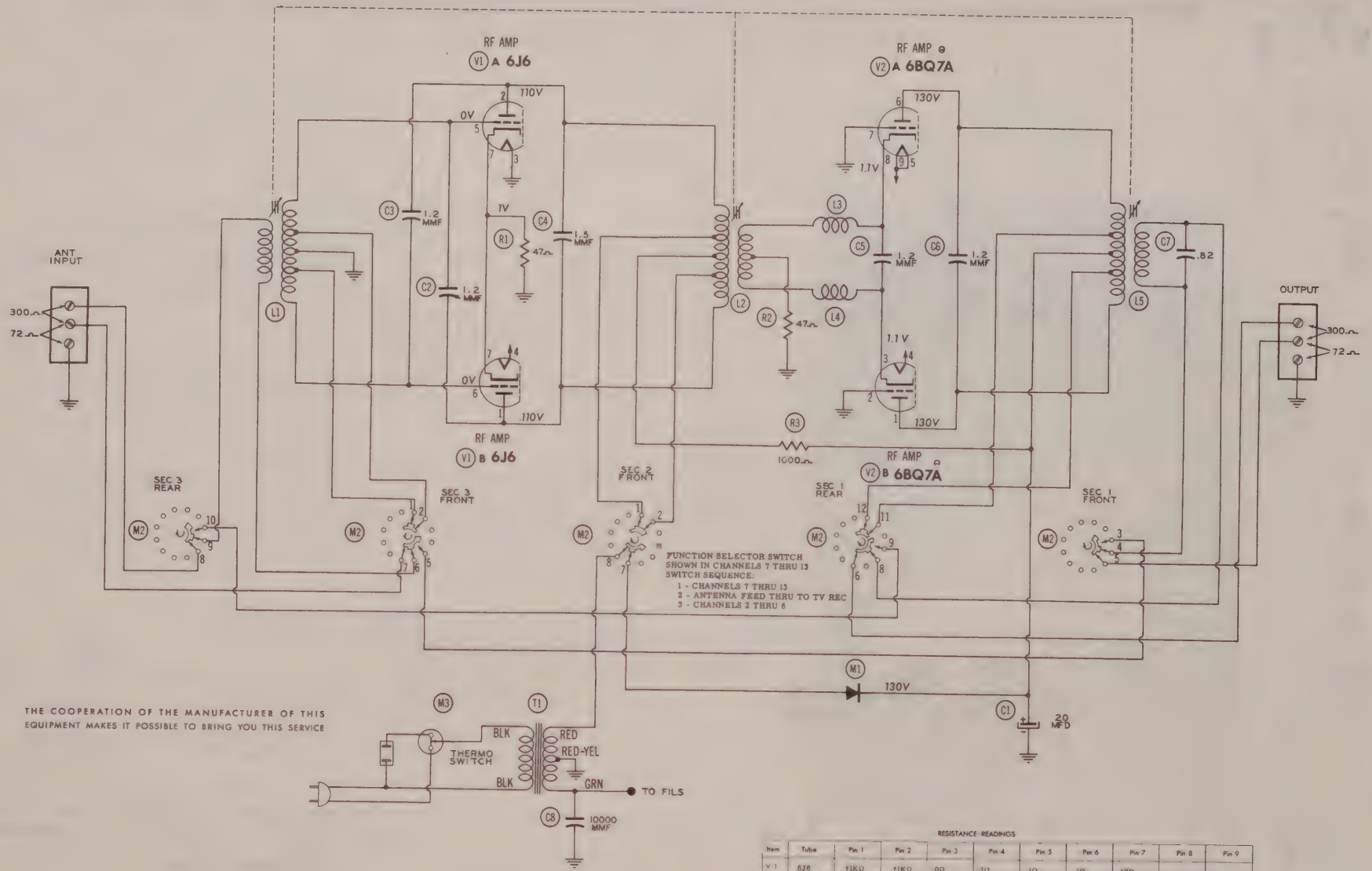
MASCO
MODEL TVB



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RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†1KΩ	†1KΩ	0Ω	.1Ω	.1Ω	.1Ω	47Ω		
V 2	6BK7A	†0Ω	0Ω	47Ω	0Ω	.1Ω	†0Ω	0Ω	47Ω	0Ω

† MEASURED FROM OUTPUT OF M1

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.

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(Ch. 201-34, 201-553, Audio Ch. 159-1, Radio Ch. 160-1)

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MODEL 2701

PACIFIC-MERCURY MODELS 2424, 2701
(Ch. 201-34, 201-553, Audio Ch. 159-1, Radio Ch. 160-1)

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DATE 10-54 SET 254 FOLDER 9

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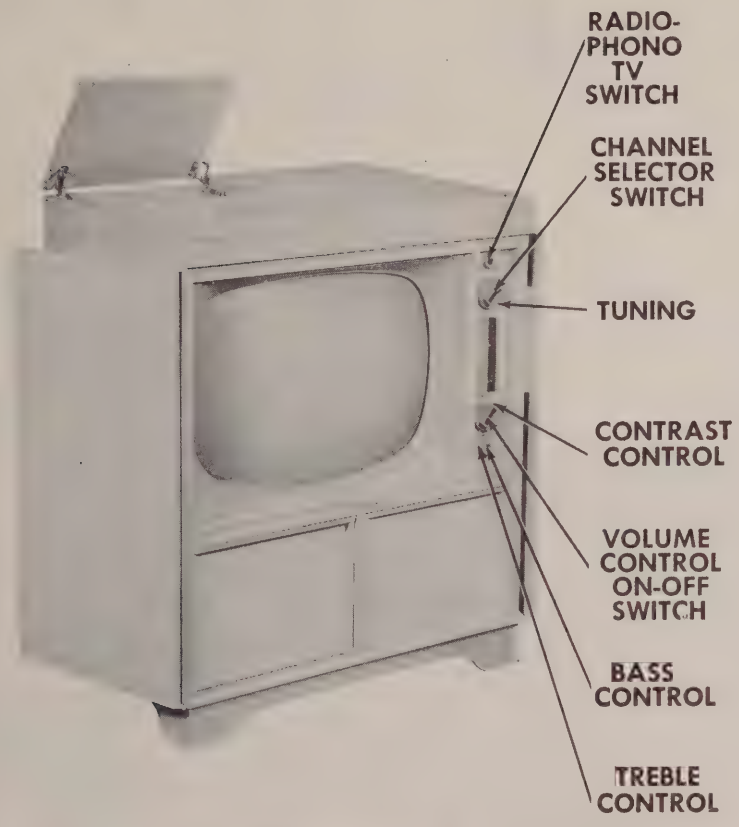

PACIFIC-MERCURY MODEL 2701

TRADE NAME	Pacific Mercury Models 2424 (Ch. 201-34), 2701 (Ch. 201-553, Audio Ch. PM-159-1, Radio Ch. PM-160-1)
MANUFACTURER	Pacific Mercury Television Mfg. Corp., 5955 Van Nuys Blvd., Van Nuys, Calif.
TYPE SET	TV-AM-Phono Combination Receiver
TUBES	Twenty-eight
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 2.34 Amp. @ 117 Volts AC
TUNING RANGE	TV Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) AM Radio 540-1620KC, AM IF 455KC

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FOR SERVICE INFORMATION ON RECORD CHANGER, SEE V-M MODEL 950, PHOTOFACT SET 216, FOLDER 11, ALSO RECORD CHANGER MANUAL CM-5.

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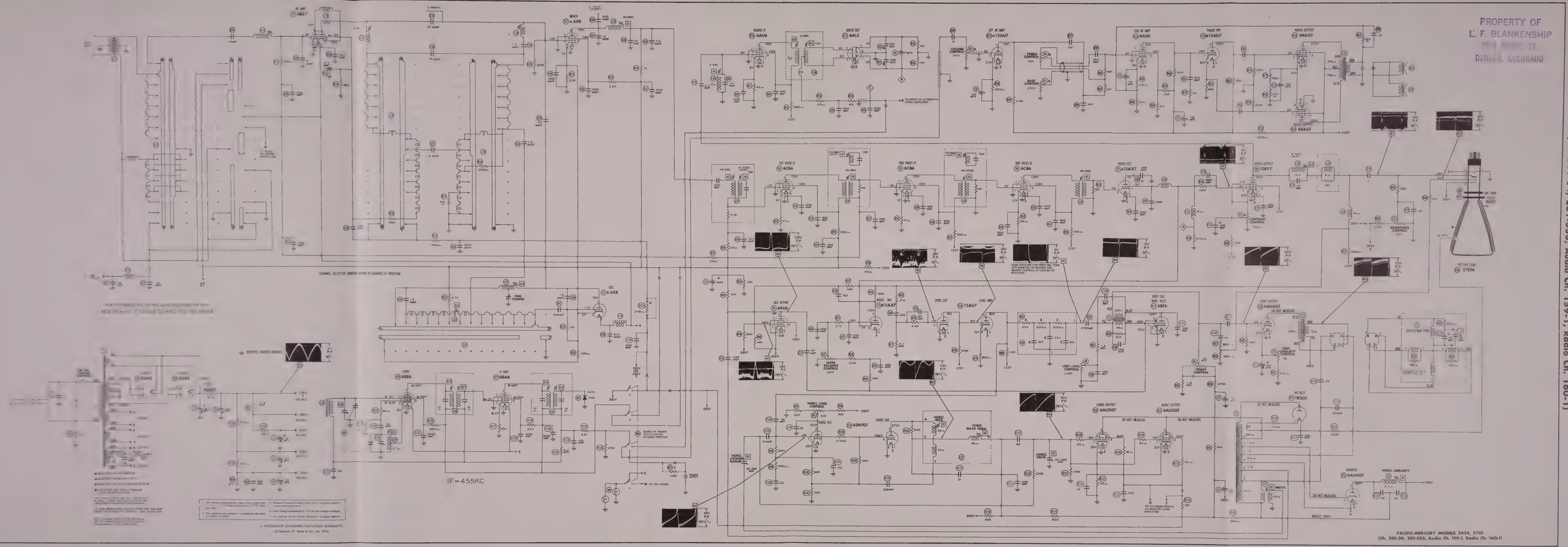
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IF=4.55KC
PACIFIC-MERCURY MODELS 2424, 2701
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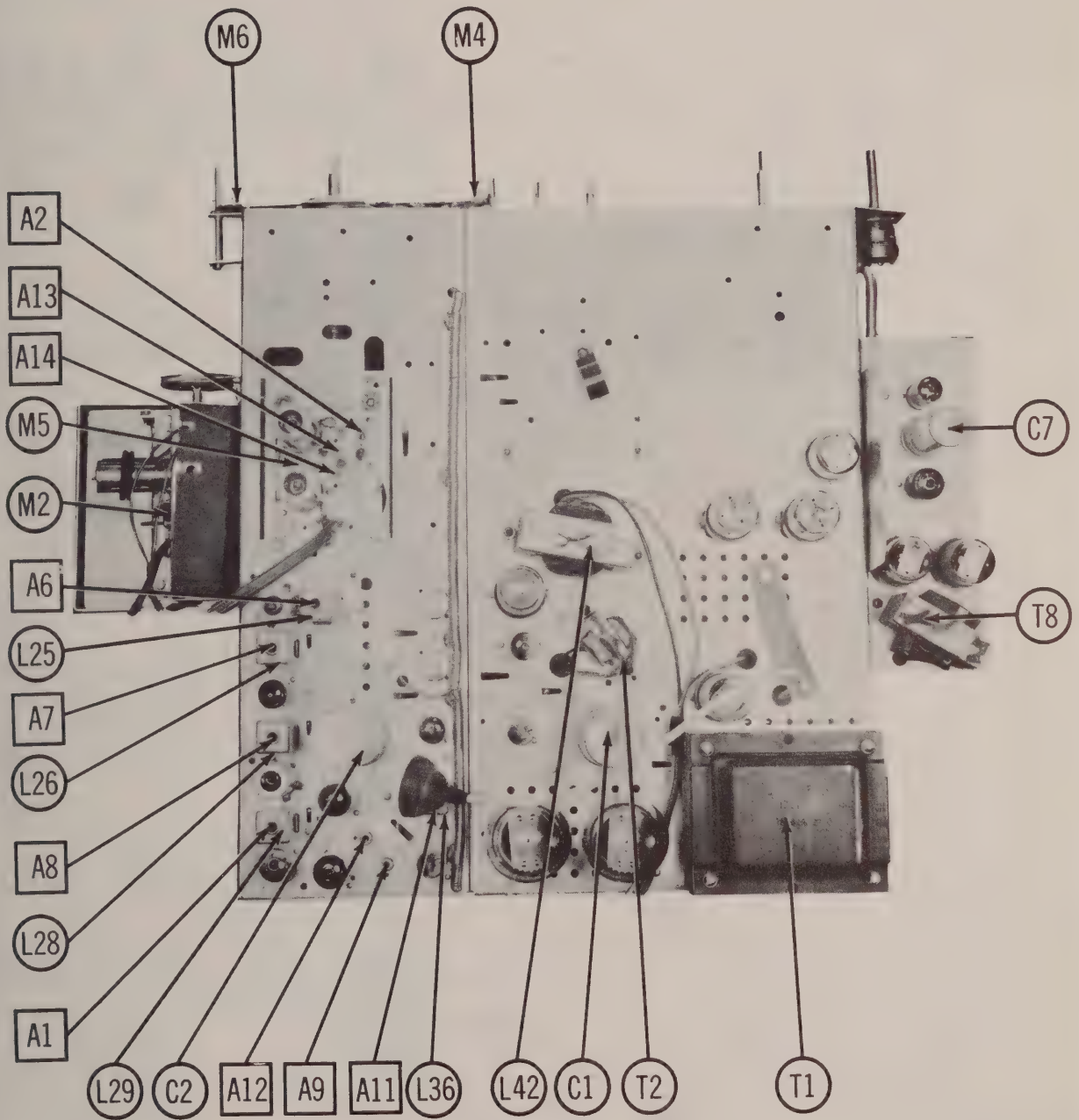

CHASSIS TOP VIEW

SET 254 FOLDER 9

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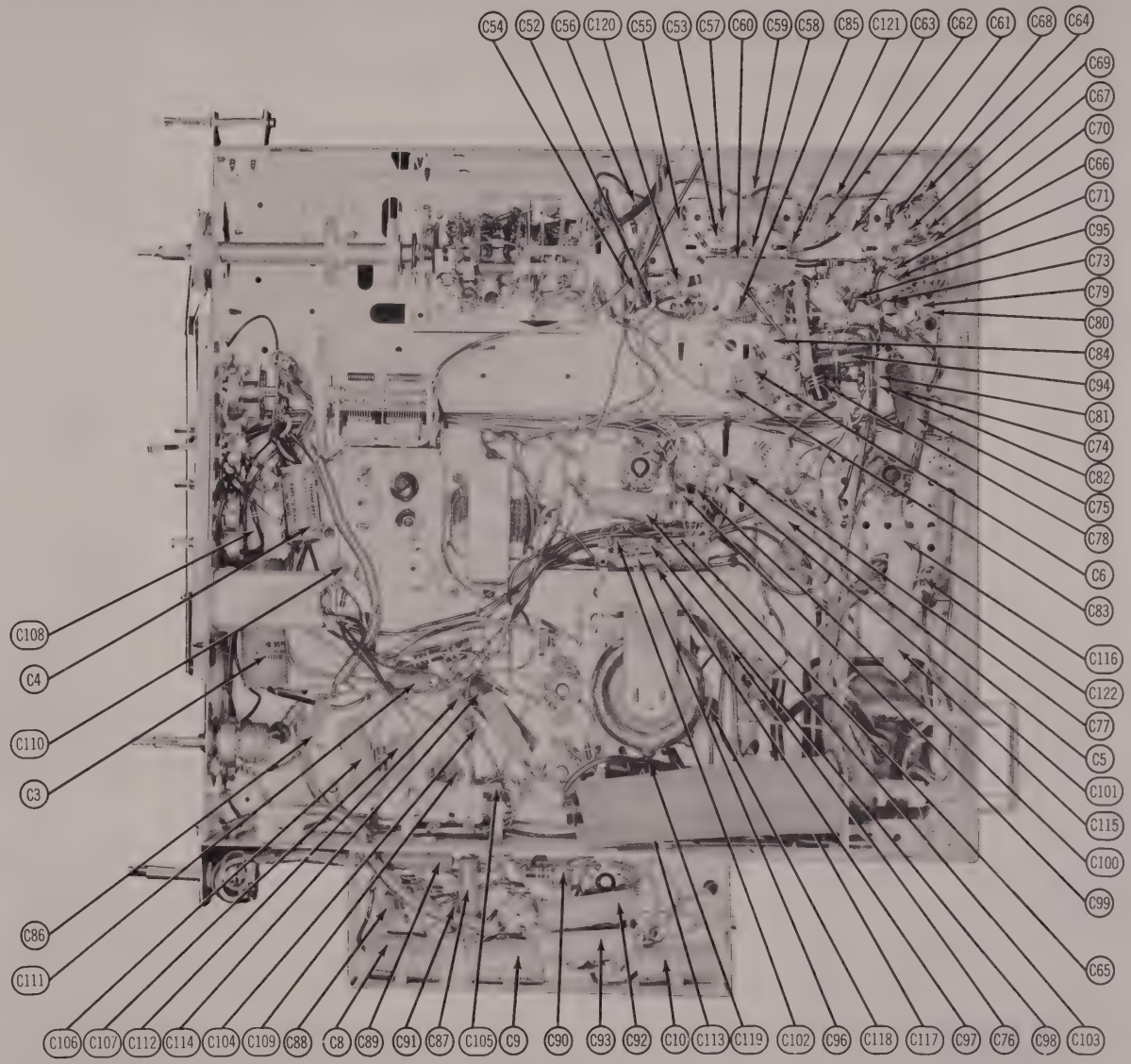
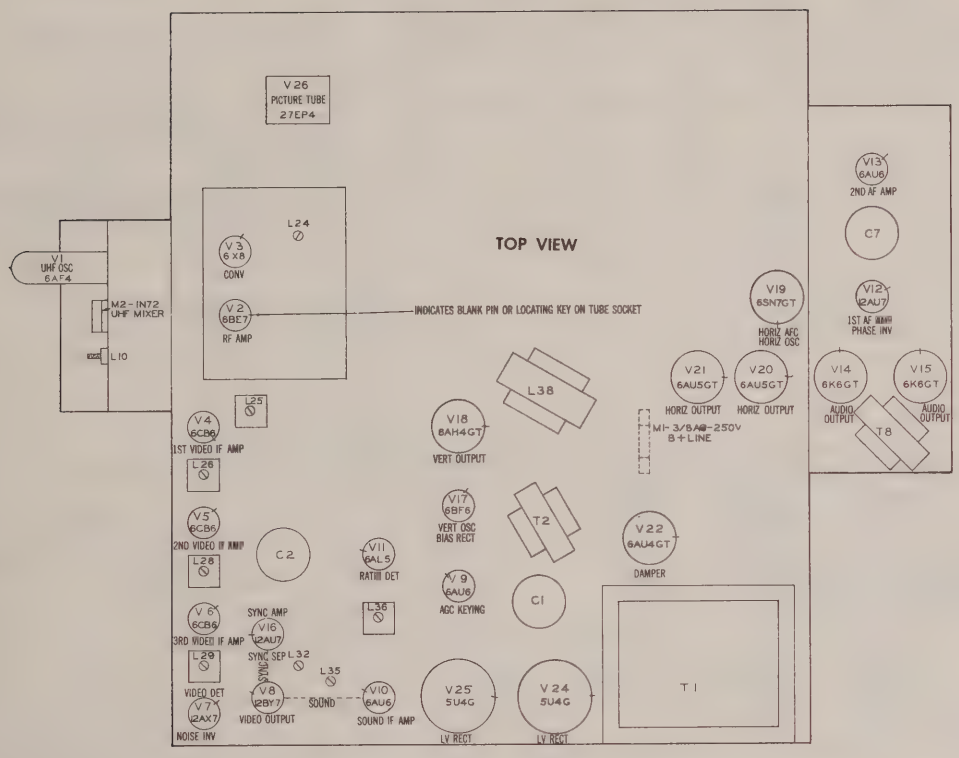


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V24, V25, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V7, V8 (V1 UHF only)
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V8, V28
Has pic, no sound - V10, V11, V12, V13, V14, V15
Overloaded picture - V9,

SYNC FAILURE
No vert. sync - V16, V17
No horiz. sync - V16, V19
No vert. or horiz. sync - V16

SWEEP FAILURE
No raster, has sound -V19, V20, V21, V23, V28
No vertical deflection - V17, V18
Poor vert. linearity or foldover - V17, V18
Poor horiz. linearity or foldover -V19, V20, V21, V22
Narrow picture - V19, V20, V21, V22, V23, V24, V25
Vert. off freq. -V16, V17
Horiz. off freq. - V16, V19

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V19) from its socket.

VIDEO IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube (V3). Low side to chassis.	43.9MC (Unmod)	7 or 13	DC probe to point (A). Common to chassis.	A1	Adjust for maximum deflection. Attenuate generator output to maintain 1 to 1.5 volts at VTVM.
2.	"	"	"	"	"	A2	Connect a 1KΩ resistor from Pin 1 (grid) of 6CB6 (V4) to the AGC line (lug 8 on tuner terminal board.) Adjust A2 for maximum deflection. Remove the 1KΩ resistor from the grid of V4.
3.	"	"	44MC	"	"	A3	Adjust for maximum deflection. Attenuate generator output to maintain 1 to 1.5 volts of VTVM.
4.	"	"	42.5MC	"	"	A4	"
5.	"	"	45.35MC	"	"	A5	"
6.	"	"	41.25MC	"	"	A6, A7	Adjust for MINIMUM deflection.
7.	"	"	47.25MC	"	"	A8	"
8.	Repeat steps 3, 4 and 5.						
9.	Repeat step 1.						

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 3 volt battery to the ungrounded side of C5. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Direct	High side to an ungrounded tube shield floating over converter tube (V3). Low side to chassis.	44MC (10MC Swp)	41.25MC 42.25MC 45.75MC 47.25MC	7 or 13	Vert. Amp. thru 10KΩ to point (A). Low side to chassis.		Check for response similar to Fig. 1. If necessary retouch A1 thru A5 to obtain desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod)	7 or 13	DC probe to point (B). Common to chassis.	A9, A10	Adjust for maximum deflection.
12.	"	"	"	"	DC probe to point (C). Common to chassis.	A11	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	7 or 13	Vert. amp. to point (B). Low side to chassis.	A9, A10	Disconnect stabilizing capacitor C6. Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
12.		"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A11	Reconnect stabilizing capacitor C6. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

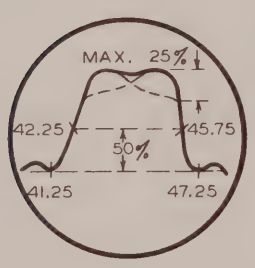


FIG. 1

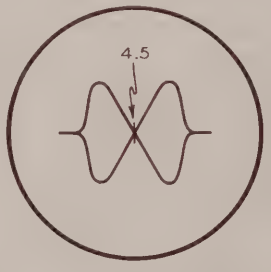


FIG. 3

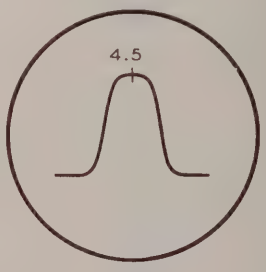


FIG. 2

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TV ALIGNMENT INSTRUCTIONS (cont)

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	.01MFD	High side to point A Low side to chassis.	4.5MC (Unmod)	7 or 13	DC probe thru detector (Fig. 4) to pin 11 (cathode) of picture tube. Low side to chassis.	A12	Adjust for MINIMUM deflection.

VHF OSCILLATOR ALIGNMENT

Connect bias battery as under "Overall Video IF Response Check".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10KΩ to point A. Low side to chassis.	A13	Adjust to place sound marker in trap notch as in Fig. 5. Video marker should be at 50%.
15.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check for sound marker placement as in Fig. 5. If necessary, make SLIGHT compromise adjustment of A13 for best marker placement on all high band channels.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
16.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A14	Adjust to place sound marker in trap notch as in Fig. 5. Video marker should be at 50%.
17.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"		Check low band channels for correct sound marker placement as in Fig. 5. If necessary, make SLIGHT compromise adjustment of A14 for best marker placement on all low band channels.
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

RF AND MIXER ALIGNMENT

The RF section of the VHF tuner and the UHF tuner have been properly aligned at the factory and are very stable. Alignment of these portions of the receiver should not be required in the field.

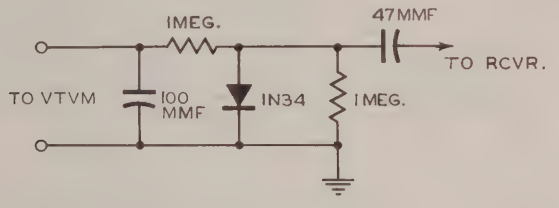


FIG.4

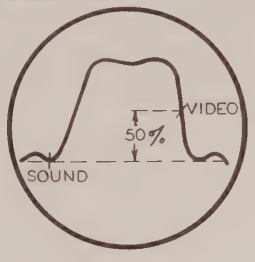


FIG.5

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

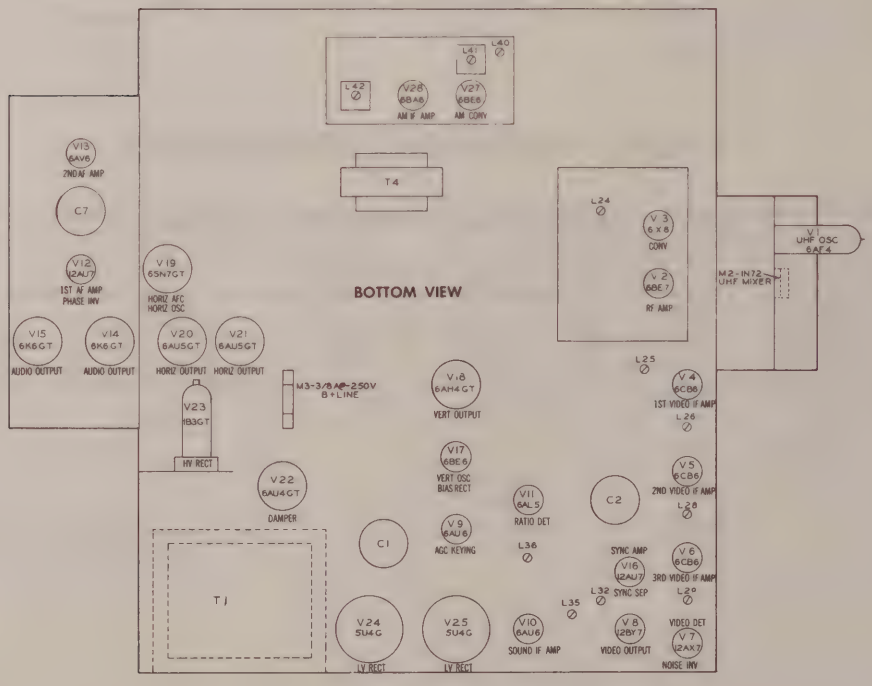
Turn the "Radio TV-Phono" function switch to "Radio" position.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
18.	.01MFD	High side to antenna stator lug on tuning gang. Low side to chassis.	455KC (400~Mod)	Radio	Tuning gang fully open	Across voice coil	A15,A16 A17,A18	Adjust for maximum deflection.
19.	"	"	1620KC	"	"	"	A19	"
20.	"	"	600KC	"	Tune to 600KC signal	"	A21	"
21.	"	Loop	1400KC	"	Tune to 1400KC signal	"	A20	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

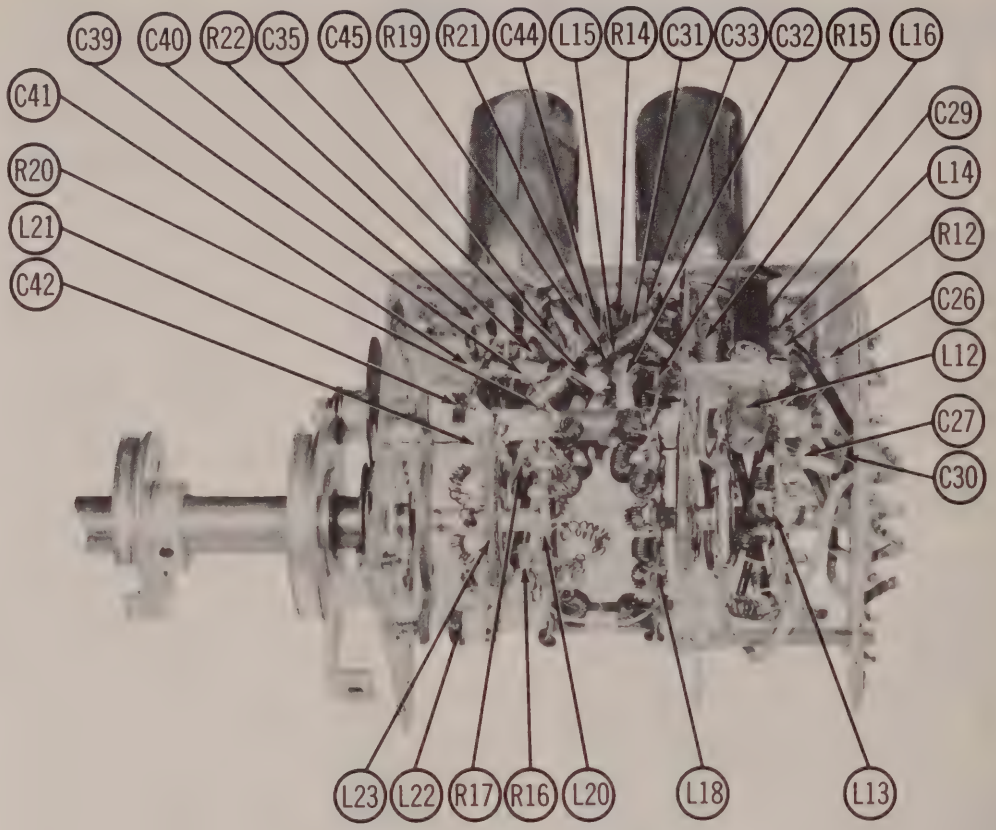
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AF4	†■2. 2KΩ	12KΩ	0Ω	. 1Ω	. 1Ω	12KΩ	†■2. 2KΩ		
V 2	6BZ7	†3. 7KΩ	†500KΩ	INF	. 1Ω	0Ω	INF.	105KΩ	0Ω	0Ω
V 3	6X8	0Ω	15. 2KΩ	†6. 7KΩ	0Ω	. 1Ω	220Ω	220KΩ	† 4. 2KΩ	† 3. 2KΩ
V 4	6CB6	103KΩ	47Ω	0Ω	. 1Ω	†3. 2KΩ	†3. 2KΩ	0Ω		
V 5	6CB6	100KΩ	47Ω	. 1Ω	0Ω	†3. 2KΩ	†3. 2KΩ	0Ω		
V 6	6CB6	. 1Ω	150Ω	. 1Ω	0Ω	†2. 4KΩ	†2. 4KΩ	0Ω		
V 7	12AX7	INF.	4. 7KΩ	. 1Ω	. 1Ω	. 1Ω	†120KΩ	160KΩ	4. 7KΩ	0Ω
V 8	12BY7	750Ω	1 Meg	750Ω	. 1Ω	. 1Ω	0Ω	9KΩ	† 2KΩ	750Ω
V 9	6AU6	† 25KΩ	†1KΩ	INF.	INF.	200KΩ	† 70Ω	† 1KΩ		
V 10	6AU6	2Ω	0Ω	. 1Ω	0Ω	† 3. 2KΩ	† 3. 2KΩ	82Ω		
V 11	6AL5	INF.	INF.	0Ω	. 1Ω	10KΩ	0Ω	10KΩ		
V 12	12AU7	†273KΩ	80KΩ	5. 6KΩ	. 1Ω	. 1Ω	†103KΩ	†153KΩ	100KΩ	0Ω
V 13	6AU6	120KΩ	0Ω	0Ω	. 1Ω	†153KΩ	†60KΩ	500Ω		
V 14	6K6GT	INF.	. 1Ω	†1. 3KΩ	†900Ω	470KΩ	INF.	0Ω	600Ω	
V 15	6K6GT	INF.	0Ω	†1. 3KΩ	†900Ω	470KΩ	INF.	I1Ω	600Ω	
V 16	12AU7	†470KΩ	5. 2Meg	0Ω	. 1Ω	. 1Ω	†6KΩ	†470KΩ	1. 8KΩ	0Ω
V 17	6BE6	3 Meg	0Ω	. 1Ω	0Ω	0Ω	600KΩ	# 2Meg		
V 18	6AH4GT	1 Meg	. 1Ω	INF.	INF.	† 275Ω	INF.	0Ω	1. 2KΩ	
V 19	6SN7GT	1 Meg	† 80KΩ	300KΩ	250KΩ	† 80KΩ	0Ω	. 1Ω	0Ω	
V 20	6AU5GT	470KΩ	0Ω	150Ω	INF.	# 7. 5Ω	INF.	. 1Ω	† 15. 1KΩ	
V 21	6AU5GT	470KΩ	0Ω	150Ω	INF.	# 7. 5Ω	INF.	. 1Ω	† 15. 1KΩ	
V 22	6AU4GT	INF.	INF.	200KΩ	INF.	† 70Ω	200KΩ	200KΩ	200KΩ	
V 23	1B3GT	PINS 1-8 HAVE INF. RESISTANCE								TOP CAP # 358Ω
V 24	5U4G	INF.	20KΩ	INF.	16Ω	INF.	18Ω	INF.	20KΩ	
V 25	5U4G	INF.	20KΩ	INF.	16Ω	INF.	18Ω	INF.	20KΩ	
V 26	6BE6	22KΩ	. 3Ω	0Ω	. 1Ω	†¶2. 2KΩ	†¶9KΩ	2. 7Meg		
V 27	6BA6	2. 7Meg	0Ω	0Ω	. 1Ω	†¶2. 2KΩ	†¶24. 2KΩ	68Ω		
V 28	2 7EP4	0Ω	12. 2KΩ	PIN 10 † 62Ω	PIN 11 † 120KΩ	PIN 12 . 1Ω				

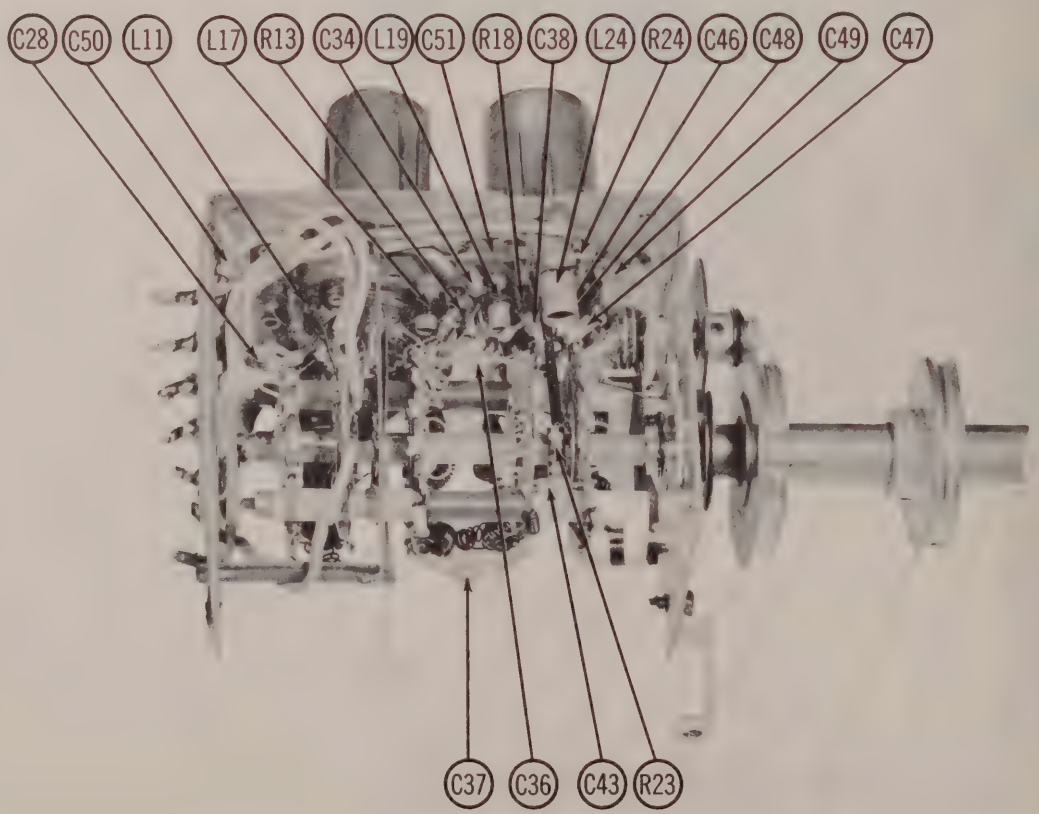
† MEASURED FROM PIN 8 OF V24.
■ MEASURED IN UHF POSITION.
MEASURED FROM PIN 3 OF V22.
¶ MEASURED WITH M6 IN RADIO POSITION.



TUBE PLACEMENT CHART



VHF TUNER-RIGHT SIDE



VHF TUNER-LEFT SIDE

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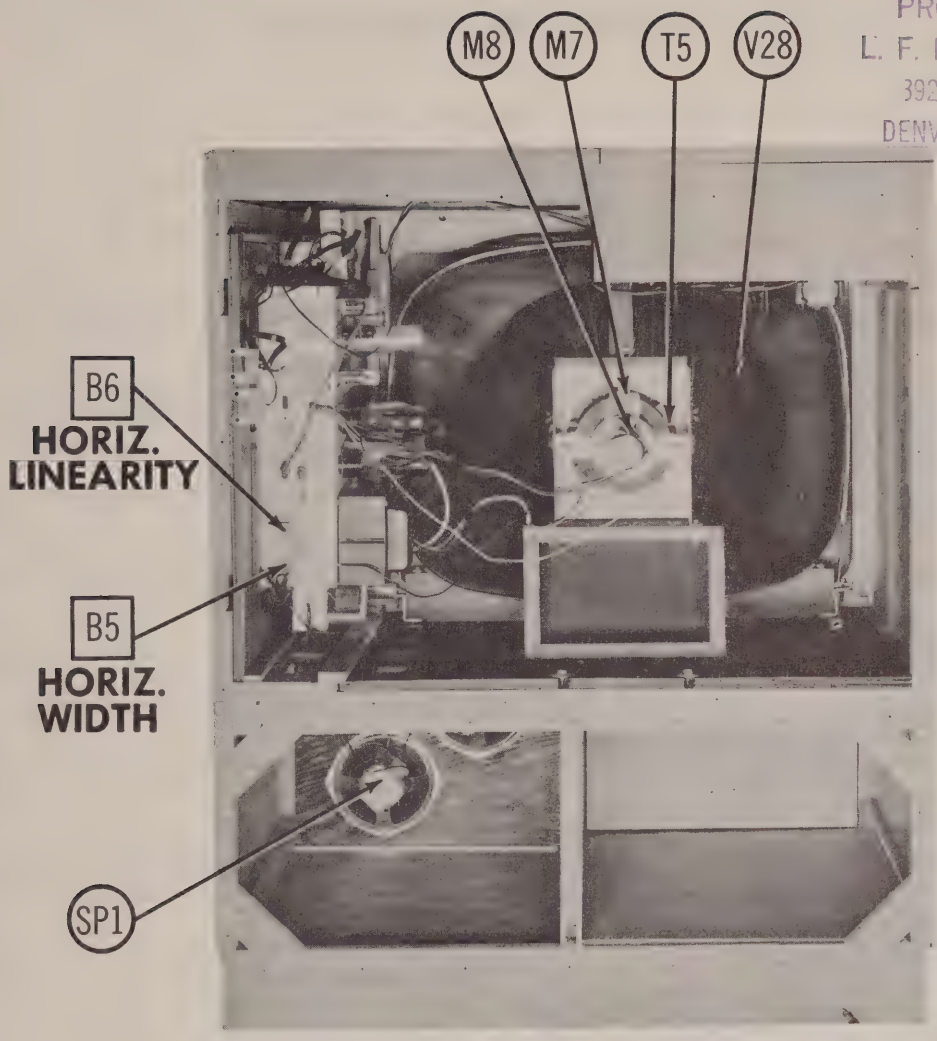

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Set the noise balance control to maximum clockwise position.
Connect the vertical input of an oscilloscope thru a 10-50MMF capacitor to terminal "C" of L37.
Connect the DC probe of a VTVM to pin 1 (grid) of 6AU5 (V20). Connect the common lead to chassis.
Set the horizontal locking range trimmer (B1) 1/4 turn from tight.
Set the horizontal drive trimmer (B2) for -9 volts on VTVM.
With the horizontal lock control at its mid-range position, adjust the horizontal frequency slug (B3) to sync the picture horizontally.
Adjust the horizontal waveform slug (B4) for a waveform on the scope as in Fig. 6, with broad and narrow peaks of equal height. If necessary, While adjusting B4, keep the picture in sync by turning B3.
Set the horizontal hold control fully clockwise and switch off channel and back again. There should be 3 diagonal bars preset in the picture. Retouch B3 for that number, if necessary.
When switching channels, picture should pull into sync over half the rotation range of the horizontal lock control. If sync range is less, adjust B1 counter clockwise for desired results.
If picture jitters at any position of the horizontal lock control, turn control clockwise to position that produces the greatest amount of jitter and adjust B3 clockwise until jitter is eliminated. If adjustment of B3 does not eliminate jitter adjust B1 in clockwise direction.
Adjust the width coil slug (B5) for a picture slightly wider than necessary to fill the picture mask horizontally.
Adjust the horizontal linearity coil slug (B6) for a picture that is symmetrical from left to right.

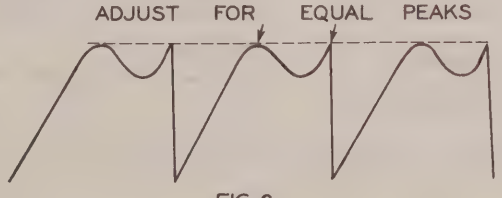

FIG. 6

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss Of High Voltage".

INSUFFICIENT SWEEP

Check adjustments B2, B5 and B6. Check by substitution V20, V21, V22, V24 and V25. Check T3, T5A, T6, T7, R113, C4 and other associated components.

DRIVE LINES

Check adjustments B2, B5 and B6. Check by substitution V20, V21 and V22. Check C111, C112, C114, R111 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V20, V21 and V22. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V19, V20, V21 and V22. Check C107 for open. Check C105, R98, R100, R101 and other associated components.

XMAS TREE EFFECT

Check by substitution V19, V20, V21 and V22. Check T3 and T5A for internal arcing. Check L37, C109, C110, C111, R97 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V17 and V18. Check waveform W9.

If Satisfactory	If Unsatisfactory
Check T4, T5B, C1B, R7 and other associated components.	Check T2, C103, C101, R86, R6 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V17 and V18. Check height and vertical linearity controls for proper operation. If still unsatisfactory proceed as outlined under "Loss Of Sweep".

COMPRESSED AT BOTTOM

Check by substitution V17 and V18. Check R86, R6, C101 and other associated components.

COMPRESSED AT TOP

Check by substitution V17 and V18. Check C1B, R7, R91 and other associated components.

FOLDS

Check by substitution V17 and V18. Check C102, R87, R89 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Substitute V16. Check C94, C95, R78, R80 and other associated components.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Check by substitution V17. Check waveform W7.

If Satisfactory	If Unsatisfactory
Check T2, R83, C99, C100 and other associated components.	Check vertical integrator network. Check video IF alignment for overloading.

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Check by substitution V19. Check C104, C106, C107, R96, R99 and other associated components.

HORIZONTAL BENDING

Check by substitution V16, V10, V19 and other associated components.

VIDEO

LOSS OF VIDEO

Substitute V8. Check C73, L33, C74, picture tube and other associated components.

SOUND BARS (4.5 MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustments A12. Check video IF alignment.

POOR CONTRAST

Substitute V8. Check contrast control, picture tube and check video detector network. Check video IF alignment.

NEGATIVE PICTURE

Substitute V8. Check picture tube. Check video IF components for failure or change of value.

SMEAR

Substitute V8. Check L31, L33, L34, C73 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V4, V5, V6, V7 and V8 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V10, V11, V12, V13, V14 and V15. Check stages V12, V13, V14 and V15 using audio signal generator. Apply audio signal across R2B.

If Satisfactory	If Unsatisfactory
Check components associated with audio IF and ratio detector stages, especially C81 and R72.	Check R59, R62, R60, R72, C92, C93, T8, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustments A11. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak Or No Sound".

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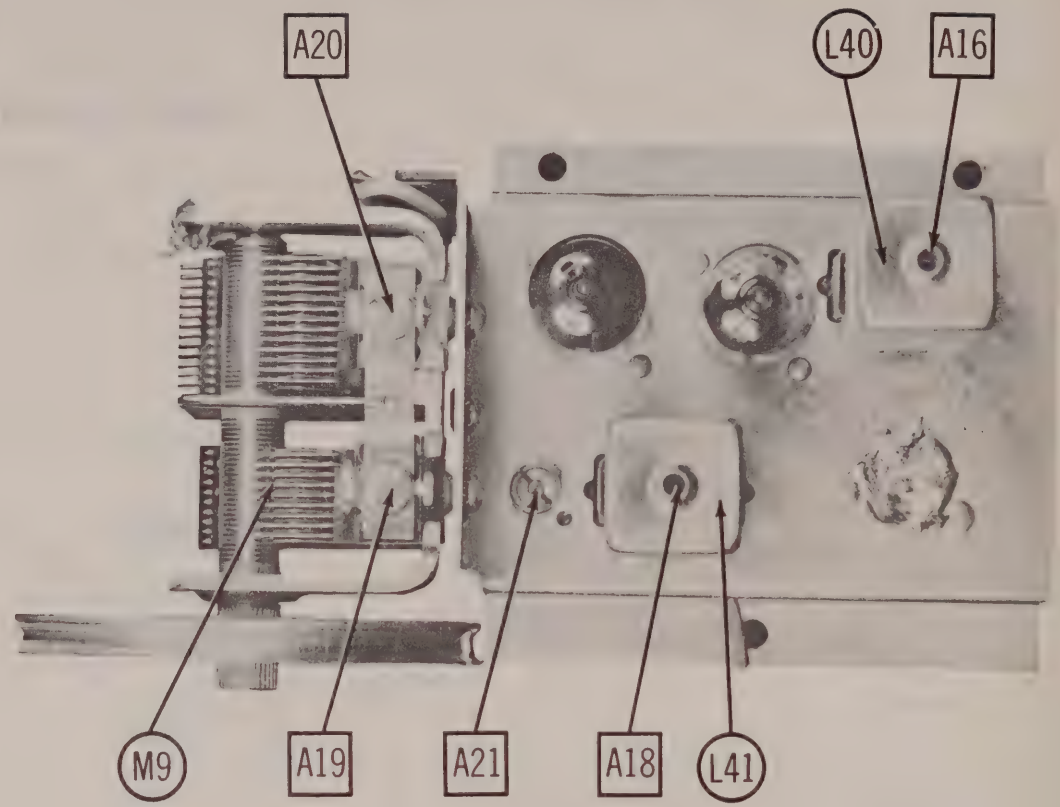
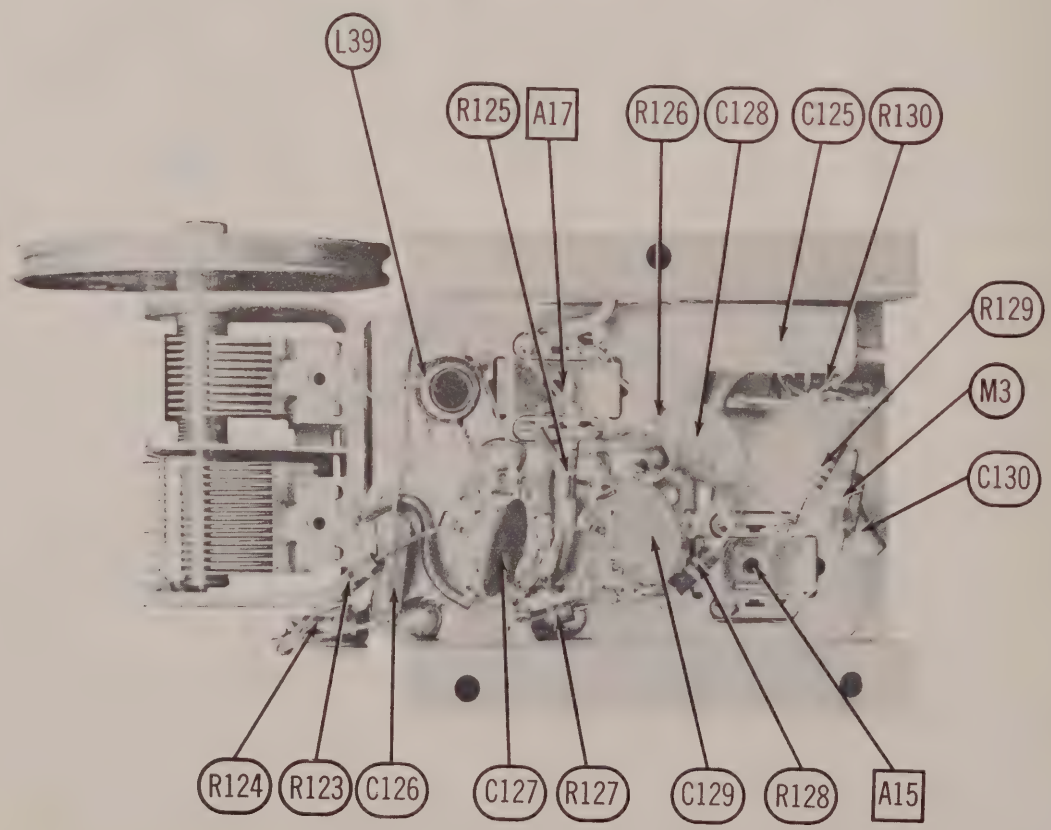
PACIFIC-MERCURY MODELS 2424, 2701
(Ch. 201-34, 201-553, Audio Ch. 159-1, Radio Ch. 160-1)

UHF-ALTERNATE TUNER SCHEMATIC

A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1954



RADIO CHASSIS TOP VIEW



RADIO CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

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ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		Pacific Mercury PART No.	STANDARD REPLACEMENT		
V1	UHF Oscillator	6AF4	6AF4	7DK	
V2	RF Amplifier	6BZ7	6BZ7	9AJ	
V3	Converter	6X8	6X8	9AK	
V4	1st Video IF Amp.	6CB6	6CB6	7CM	
V5	2nd Video IF Amp.	6CB6	6CB6	7CM	
V6	3rd Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Det-Noise Inv.	12AX7	12AX7	9A	
V8	Video Output	12BY7	12BY7	9BF	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	Sound IF Amp.	6AU6	6AU6	7BK	
V11	Ratio Detector	6AL5	6AL5	6BT	
V12	1st AF Amp-Phase Inverter	12AU7	12AU7	9A	
V13	2nd AF Amplifier	6AU6	6AU6	7BK	
V14	Audio Output	6K6GT	6K6GT	7S	
V15	Audio Output	6K6GT	6K6GT	7S	
V16	Sync Sep-Sync Amp.	12AU7	12AU7	9A	
V17	Vert. Oscillator-Bias Rectifier	6BF6	6BF6	7BT	
V18	Vert. Output	6AH4GT	6AH4GT	8EL	
V19	Horiz. AFC - Horiz.Oscillator	6SN7GT	6SN7GT	8BD	
V20	Horiz. Output	6AU5T	6AU5GT	6CK	
V21	Horiz. Output	6AU5GT	6AU5GT	6CK	
V22	Damper	6AU4GT	6AU4GT		
V23	HV Rectifier	1B3GT	1B3GT	3C	
V24	LV Rectifier	5U4G	5U4G	5T	
V25	LV Rectifier	5U4G	5U4G	5T	
V26	Converter	6BE6	6BE6	7CH	
V27	AM IF Amplifier	6BA6	6BA6	7BK	AM Radio

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					RETMA BASE TYPE	NOTES
	Pacific Mercury PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V28	27EP4	27EP4	27EP4	27EP4 27RP4 ①		12D 12N	① Circuit changes necessary.
	24CP4	24CP4A	24CP4A	24CP4 24CP4A		12N 12N	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Pacific Mercury PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	▰80	450	PMA-42018	AFH4-87		D066		FP245	TVL-3757	Note 1
B	▲100	50						TC3501		Note 1
C	■10	400								Note 1
C2A	▰40	450	PMA-42001	AFH3-44		C175		FP240		
B	■50	350						TC78		
C	▲50	300								
C3	10	700	PMA-42019			BRHV710				
C4	10	450	PMA-42016	PRS450/10		BR1045		TC72	TVA-1705	
C5	1	50	PMA-42002	PRS150/4		BBR1-50		TC31	TVA-1300	Note 2
C6	1	50	PMA-42002	PRS150/4		BBR1-50		TC31	TVA-1300	
C7	40	450	PMA-42026	AFH1-52		A048		FP146	TVL-1725	
C8	100	6	PMA-42025	PRS6/100		BRH601		TC2501	TVA-1101	
C9	100	6	PMA-42025	PRS6/100		BRH601		TC2501	TVA-1101	
C10	100	50	PMA-42005	PRS50/100		BRH501		TC3501	TVA-1310	
C11	1			SI1NP0	TCZ-1	TZ03	NP0K-010		5TCCB-V1	
C12	1			SI1NP0	TCZ-1	TZ03	NP0K-010		5TCCB-V1	
C13	2.7									
C14	.8-6.5									
C15	.25									
C16	.25									
C17	.8-6.5									
C18	2.5									
C19	2.2			SI2.2NP0	TCZ-2.2	TZ05	NP0K-2R2		5TCCB-V22	
C20	.7									
C21	3-10									
C22	6									
C23	68			SI68	D6-680	TP32	GP1K-680	UC-5468	5GA-Q68	
C24	68			SI68	D6-680	TP32	GP1K-680	UC-5468	5GA-Q68	
C25	15									
C26	110									
C27	12									
C28	15			SI15	D6-150	TP11	GP1K-150	UC-5415	5GA-Q15	
C29	3			SI3.3NP0	TCZ-3.3	TZ06	NP0K-030	ZT-5533	5TCCB-V33	
C30	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C31	470									
C32	470			SI470	D6-471	TP46	GP2K-471	UC-5347	5GA-T47	
C33	800			BPD-0008	DD-801	K069	801-001	DC-521	5HK-D1	
C34	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C35	.33									
C36	.36									
C37	1.6									
C38	1.5									
C39	.75									
C40	1.5									
C41	10									
C42	1.5									
C43	1.6									
C44	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C45	800			BPD-0008	DD-801	K069	801-001	DC-521	5HK-D1	
C46	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C47	10			SL10NP0	TCZ-10	TZ09	NP0K-100	ZT-541	5TCC-Q1	
C48	800			BPD-0008	DD-801	K069	801-001	DC-521	5HK-D1	
C49	110									
C50	7.5									
C51	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	

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PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Pacific Mercury PART No	AEROVOX PART No.	CENTRALAB PART No	CORNELL DUBILIER PART No.	ERIE PART No	MALLORY PART No	SPRAGUE PART No	NOTES
C52	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C53	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C54	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK D51	
C55	620		PMA-40521-42			G064				
C56	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C57	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C58	620		PMA-40521-42			G064				
C59	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C60	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C61	620		PMA-40521-42			G064				
C62	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C63	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK D15	
C64	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C65	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C66	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C67	220		PMB-40518-19	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C68	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	Note 4
C69	5		PMB-40518-1	SENP0	TC-4.7	TC07	NP0K-050	ZT-525	5TCCB-V47	
C70	5000		PMA-40517-3	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C71	200			SI200	D6-201	TP38	GP2K-201	UC-532	5GA-T2	Note 3
C72	1000		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	Note 4
C73	47			SI47NP0	TCZ-47	T222	NP0K-470	ZT-5447	5TCC-Q47	
C74	.1	600	PMB-41006-51	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C75	.05	400	PMB-41006-30	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C76	220	1500	PMA-41005-1	MVD15-00022	DD30-221	MCT22	1R5KY-221	MCK322	20GA-T22	
C77	47	500	PMB-41003-15	1469-00005		22R5Q47			MS-45	
C78	.022	400	PMB-41007-74	P488-022	DF-203	CUB4S22	817-02	PT4122	4TM-S22	
C79	3.2		PMA-40519-3	SI2.2NP0	TCZ-3.2	TZ05	NP0K-3R2		5TCCB-V22	
C80	47			SI47NP0	TCZ-47	Z033	NP0K-470	ZT-5447	5TCC-Q47	
C81	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C82	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C83A	1500		PMA-40517-4	BPD-2X0015	DD2-152	DK071	812-0015	DCD-5215	5HK-2D15	
B	1500									
C84	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C85	5000		PMB-40518-32	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C86	.01	400	PMB-41006-7	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	6TM-S1	
C87	.047	400	PMB-41006-30	P488-047	DF-503	CUB4S47		PT4147	4TM-S47	
C88	.00	500	PMB-40518-37	1468-0004	D6-391	SW5T39	GP2K-391	MC343	1FM-34	
C89	.047	400	PMB-41006-30	P488-047	DF-503	CUB4S47		PT4147	4TM-S47	
C90	.01	400	PMB-41006-7	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	6TM-S1	
C91	220		PMB-40518-19	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C92	.1	600	PMB-41006-51	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C93	.1	600	PMB-41006-51	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C94	.022	600	PMB-41007-85	P688-022	DF-203	CUB6S22	817-02	PT6122	6TM-S22	
C95	150		PMB-40518-17	SI150	D6-151	TP36	GP2K-151	UC-5315	5GA-T15	
C96A	.002					PT622		PT625		
B	.005		♦P MA-95000	♦PA-110	♦PC-100	♦1S7MI	♦1405-01	PT625	♦V-1	
C	.006							PT625		
C97	4700	500	PMB-40003-53	1464-005		1R5D47		MCK465	MI-25	
C98	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C99	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C100	470		PMA-40520-23	BPD-00047	D6-471	TP46	801-470	UC-5347	5GA-T47	
C101	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C102	.05	600	PMB-41006-49	P688-05	DF-503	CUB6S5		PT615	6TM-S5	
C103	.1	600	PMB-41006-51	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C104	56	1000	PMB-40003-17							
C105	100	500	PMB-40003-23	1469-0001		22R5T1		MCE235	MI-31	
C106	.25	200	PMB-41006-15	P288-25		CUB2P25		PT4025	2TM-P25	
C107	.02	400	PMB-41006-28	P488-02	DF-203	CUB4S2	817-02	PT422	4TM-S2	
C108	.05	400	PMB-41006-30	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C109	220	500	PMA-40003-31	1469-00025		22R5T22		MCE240		
C110	.01	200	PMA-41009	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C111	1200	500	PMB-40003-49			1R5U12				
C112	.002	600	PMB-41008-39	P688-001	D8-102	CUB6DI	GP2L-102	PT621	6TM-D1	
C113	.022	600	PMB-41007-85	P688-022	DF-203	CUB6S22	817-02	PT6122	6TM-S22	
C114	.47	200	PMB-41007-17	P288-47		CUB2P47		PT4047	2TM-P47	
C115	.05	600	PMB-41006-49	P688-05		CUB6S5		PT615	6TM-S5	
C116	.05	800	PMB-41006-49	P888-05		CUB6S5		PT815	8TM-S5	
C117	500	30000	PMA-40007			MMU30T5			30DK-T5	
C118	150	4000	PMA-40527-27							
C119	.25	600	PMB-41006-53	684-25		CUB6P25		PT6025	6TM-P25	
C120	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C121	1500		PMA-40517-2	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	
C122	.01	600	PMA-41009-1	849ZX-01		CUB6S1		PT611	6TM-S1	
C123	56	2000								Note 5
C124	56	2000								Note 5
C125	.05	200	PMB-41006-66	P288-05	DF-503	CUB2S5		PT415	2TM-S5	
C126	82	500	PMB-40001-21			22R5Q82				
C127	10000		PMA-40517-5	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C128	10000		PMA-40517-5	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C129	10000		PMA-40517-5	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C130	100		PMB-40518-14	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	

Note 1. In some models C1B is a separate unit part #PMA-42005.
C1A and C1C is then a dual unit part # PMA-42000
Note 2. Some models use 1MFD ⓖ 12V in this application (part #PMA-42027).
Note 3. Some models use 220MMF in this application (part #PMB-40518-18).
Note 4. Not used in all models.
Note 5. When C123 is 100MMF, C124 is not used.
♦ Items C96A, C96B, C96C, R18A, R18B, R8IC are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Pacific Mercury PART No	IRC PART No	CLAROSTAT PART No	CENTRALAB PART No	MALLORY PART No	INSTALLATION NOTES
R1A	250KΩ	½	PMA-48028				UF254A	Bass-Panel
B	100KΩ	½					UR15L	Treble-Rear
R2A	750Ω	2	PMB-48015	*QJ-415	RTV-382		WF75L	Contrast-Panel-Wire wound
B	500KΩ	½					UR55A †	Volume-Rear
C	Switch						US-26	Attach to R2B
R3A	250KΩ	½	PMB-48014-3	QJ1-130	A47-250K-S	AB-50	SU-46	Noise Balance
B	Shaft		Not Req.	BQ	FKS-1/4	AK-1	Not Req.	Attach to R3A
R4A	50KΩ	½	PMB-48014-8	QJ1-123	A47-50K-S	AB-31	U-35	Horiz. Lock
B	Shaft		Not Req.	Not Req.	KSS-5	AK-4	Not Req.	Attach to R4A
R5A	100KΩ	½	PMB-48014-9	QJ1-128	A47-200K-S	AB-40	U-41	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R5A
R6A	2.5Meg	½	PMB-48014-5	QJ1-239	A47-2.5Meg-S	AB-53	SU-565	Height
B	Shaft		Not Req.	BQ	FKS-1/4	AB-1	Not Req.	Attach to R6A

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Pacific Mercury PART No	IRC PART No	CLAROSTAT PART No	CENTRALAB PART No	MALLORY PART No	INSTALLATION NOTES
R7A	500Ω	½	PMB-48016	QU-114	A47-5000-S	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Req.	BQ	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	1.5Meg	½	PMB-48014-10	QU-138	A47-2Meg-S	AB-75	U-155	Vert. Lock
B	Shaft		Not Req.	Not Req.	KSS- 5	AK-4	Not Req.	Attach to R8A

* CONCENTRIBIT EQUIVALENT KIT K-3 BASE ELEMENTS & SHAFTS W11-105 & P3-205 (Panel)
B13-123 & R1-205 (Rear) & SWITCH 76-1.
† UNIVERSAL REPLACEMENT (MALLORY EXACT DUPLICATE PART #UE21WS).

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Pacific Mercury PART No	IRC PART No	NOTES
R9	470KΩ	½		BTS-470K	
R10	470KΩ	½		BTS-470K	
R11	12KΩ	½		BTS-12K	
R12	4700Ω	½		BTS 4700	
R13	1000Ω	½		BTS-1000	
R14	1 Meg 5%	½		BTS-1Meg 5%	
R15	750KΩ	½		BTS 750K	
R16	3900Ω	½		BTS-3900	
R17	470Ω	½		BTS-470	
R18	2200	½		BTS-2200	
R19	220KΩ	½		BTS-220K	
R20	220Ω	½		BTS-220	
R21	2200Ω	½		BTS-2200	
R22	15KΩ	½		BTS-15K	
R23	4700Ω	½	PMA-45020-10	BTS-330	
R24	330Ω	½	PMA-45020-10	BTS-330	
R25	330Ω	½	PMA-45020-10	BTS-330	
R26	330Ω	½	PMA-45020-10	BTS-330	
R27	47Ω	½	PMA-45015-9	BTS-47	
R28	1000Ω	½	PMA-45020-13	BTS-1000	
R29	150Ω	½	PMA-45020-8	BTS-150	
R30	27KΩ	1	PMA-45017-42	BTA-27K	
R31	47Ω	½	PMA-45015-9	BTS-47	
R32	1000Ω	½	PMA-45020-13	BTS-1000	
R33	150Ω	½	PMA-45020-8	BTS-150	
R34	330Ω	½	PMA-45020-10	BTS-330	
R35	10KΩ	½	PMA-45015-37	BTS-10K	
R36	220KΩ	½	PMA-45020-27	BTS-220K	
R37	27KΩ	½	PMA-45015-42	BTS-27K	
R38	4700Ω	½	PMA-45015-33	BTS-4700	
R39	1 Meg	½	PMA-45020-31	BTS-1 Meg	
R40	100KΩ	1	PMA-45021-25	BTA-100K	
R41	68000Ω	2	PMA-45019-35		
R42	27KΩ	½	PMA-45015-42	BTS-27K	
R43	100KΩ	½	PMA-45020-28	BTS-100K	
R44	100KΩ	½	PMA-45020-28	BTS-100K	
R45	270KΩ	½	PMA 45015-54	BTS-270K	
R46	39KΩ	½	PMA-45015-44	BTS-39K	
R47	39KΩ	½	PMA-45015-44	BTS 39K	
R48	390KΩ	½	PMA 45015-56	BTS-390K	
R49	100KΩ	½	PMA-45020-25	BTS-100K	
R50	100KΩ	½	PMA-45020-25	BTS-100K	
R51	82Ω	½	PMA-45015-12	BTS-82	
R52	1000Ω	½	PMA-45020-13	BTS-1000	
R53	270Ω	½	PMA-45015-18	BTS-270	
R54	47KΩ	½	PMA-45020-23	BTS-47K	
R55	10KΩ	½	PMA-45015-37	BTS-10K	
R56	10KΩ	½	PMA-45015-37	BTS-10K	
R57	1 Meg	½	PMA-45020-31	BTS-1 Meg	Note 1
R58	5600Ω	½		BTS-5600	
R59	270KΩ	½	PMA-45015-54	BTS-270K	
R60	150KΩ	½	PMA-45015-51	BTS-150K	
R61	100KΩ	½	PMA-45020-25	BTS-100K	
R62	100KΩ	½	PMA-45020-25	BTS-100K	
R63	150KΩ	½	PMA-45015-51	BTS-150K	
R64	10KΩ	½	PMA-45020-19	BTS-10K	
R65	68KΩ	½	PMA-45020-24	BTS-68K	
R66	470Ω	½	PMA-45020-11	BTS-470	
R67	220Ω	½		BTS-220	
R68	15Ω	½		BTS-15	
R69	47KΩ	½	PMA-45020-43	BTS-47K	
R70	15KΩ	½		BTS-15K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Pacific Mercury PART No	IRC PART No	NOTES
R71	470KΩ	½	PMA 45020-29	BTS-470K	
R72	2200Ω	½	PMA-45015-29	BTS-2200	
R73	330Ω	1	PMA-45017-19	BTA-330	
R74	270Ω	1	PMA-45015-18	BTA-270	
R75	470KΩ	½	PMA-45020-29	BTS-470K	
R76	470KΩ	½	PMA-45020-29	BTS-470K	
R77	4.7Meg	½	PMA 45020-35	BTS 4.7Meg	
R78	470KΩ	½	PMA-45020-29	BTS-470K	
R79	180Ω	½	PMA-45015-28	BTS-180	
R80	3900Ω	½	PMA-45015-32	BTS 3900	
R81A	22KΩ	½		BTS-22K	
B	8200Ω	½	♦PMA-85000	BTS-8200	
C	8200Ω	½		BTA-8200	
R82	1.8Meg	½	PMA-45015-64	BTS-1.8Meg	
R83	150KΩ	½	PMA-45015-51	BTS-150K	
R84	100KΩ	½	PMA-45020-25	BTS-100K	
R85	1.8Meg	½	PMA-45015-64	BTS-1.8Meg	
R86	270KΩ	½	PMA-45015-54	BTS-270K	
R87	8200Ω	½	PMA-45015 36	BTS-8200	
R88	10KΩ	½	PMA-45020-19	BTS-10K	
R89	2200Ω	½	PMA-45015-29	BTS-2200	
R90	1 Meg	½	PMA-45020-31	BTS-1 Meg	
R91	470Ω	½	PMA-45020-11	BTS-470	
R92	68KΩ	½	PMA-45020-24	BTS-68K	
R93	560Ω	½		BTS-560	
R94	560Ω	½		BTS-560	
R95	1000Ω	½		BTS-1000	
R96	82KΩ	½	PMA-45015-48	BTS-82K	
R97	150KΩ	½	PMA-45015-51	BTS-150K	
R98	820KΩ	½	PMA-45015-60	BTS-820K	
R99	8200Ω	½	PMA-45015 36	BTS-8200	
R100	150KΩ	1	PMA-45017-51	BTA-150K	
R101	150KΩ	1	PMA-45017-51	BTA-150K	
R102	100KΩ	1	PMA-45017 49	BTA 100K	
R103	2.7Meg	1	PMA-45017-66	BTA-2.7Meg	
R104	8200Ω	1	PMA-45015-36	BTS-8200	
R105	100KΩ	1	PMA-45020-25	BTS-100K	
R106	220KΩ	1	PMA-45015-53	BTS-220K	
R107	470KΩ	1	PMA-45020-29	BTS-470K	
R108	82Ω	1	PMA-45015-12	BTS-82	
R109	82Ω	1	PMA-45015-12	BTS-82	
R110	82Ω	1	PMA-45015-12	BTS-82	
R111	150Ω	5	PMB-47007-6		
R112	82Ω	½	PMA-45015-12	BTS-82	
R113	15KΩ	2	PMA-45019-39	BTB-15K	
R114	1800Ω	1	PMA-45017-28	BTA-1800	
R115	100KΩ	2	PMA-45019-49	BTB-100K	
R116	1.5Ω	1	PMA-45013-2		
R117	220KΩ	1	PMA-45020-27	BTA-220K	
R118	820Ω	2	PMA-45019-24	BTB-820	
R119	1000Ω	7.5	PMB-47007-1		
R120	10000Ω	7.5	PMB-47007-1		
R121	2700Ω	2	PMA-45022-30	BTB-2700	Note 1
R122	150KΩ	1	PMA-45017-51	BTA-150K	
R123	68Ω			BTS-68	
R124	22KΩ			BTS-22K	
R125	6800Ω			BTS-6800	
R126	2.2Meg			BTS-2.2Meg	
R127	68Ω			BTS-68	
R128	22KΩ			BTS-22K	
R129	47KΩ			BTS-47K	
R130	470KΩ			BTS-470K	

Note 1. Not used in all models.
♦ Items R81A, R81B, R81C, C96A, C96B, C96C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Pacific Mercury PART No	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC ⓖ 2.34A	586VCT 310ADC	5VAC ⓖ 3A	PMB-C50006						
	SEC. 3	SEC. 4	SEC. 5							
	6.3VAC ⓖ 3A	6.3VAC ⓖ 1.2A	12.6VCT ⓖ 6A							

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA Pacific Mercury PART No	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No.
T2	Vert. Osc. Trans.	PMA-56005	A-8125	A-3003	A-97X	209T1 ①	B6702	24A87 ①
T3	Horiz. Output Trans.	PMC-56017			D-59 *	235T1 *		FLY-16 *
T4	Vert. Output Trans.	PMB-56016	A-8143	A-3038	A-99X	204T9 ⑩ ⑭	Z1802	26S53
T5 A	Yoke-Horiz. (L. 5MH)	C-56015 ②		MDF-90 ④	Y-50-1 ⑤	219DI ④		Y-14
B	Vert. (41MH)	PMC-97281 ③						

TRANSFORMERS (SWEEP CIRCUITS) (Cont.)

ITEM No	USE	REPLACEMENT DATA Pacific Mercury PART No	Stancor PART No.	Merit PART No	Triad PART No	RCA TYPE No.	Halldorson PART No.	Thordarson PART No
T6	Horiz. Linearity (1-8.2MH)	PMA-56003	WC-8	MWC-8 ⑤	WC-12 ⑥	213H1		
T7	Width (3-25MH) (.15-.35MH)	PMA-56019		MWC-1 ⑬ ⑦	WC-11 ⑬ ⑦		RF800-3U8	WC-13 ⑬ ⑨

① Drill one new mounting hole.
② Includes C123, C124, R93, R94 and male plug.
③ Alternate yoke.
④ Use original yoke network.
⑤ Enlarge mounting hole.
⑥ Connect to coded blue and green terminals.
⑦ Connect coded red and blue terminals across terminals #1 and #3. Green and black terminals to AFC. If picture is out of phase, reverse green and black terminals.
⑧ Connect terminals #1 and #2 of RF800 across terminals #1 and #3. Center-tap and #3 terminal to AFC. If picture is out of phase, reverse center-tap and #3 terminal.
⑨ Connect terminals #3 and #4 of WC-13 across terminals #1 and #3. #1 and #2 terminals to AFC. If picture is out of phase, reverse #1 and #2 terminals.
⑩ Drill new mounting holes.
⑭ Mount on top of chassis.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Stancor Replacement Connections	Merit Replacement Connections	Triad Replacement Connections	RCA Replacement Connections	Halldorson Replacement Connections	Thordarson Replacement Connections
	9		9	9	9	9	
	7		7	7	7	7	
	5		5	5	5	5	
	4		4	4	T	T	
	T		T	T	T	T	
	3		3	3	3	3	
	1		1	1	1	1	
Connect Width Coil Across →	3 & 1		3 & 1	3 & 1	3 & 1	3 & 1	3 & 1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Pacific Mercury PART No	Stancor PART No	Merit PART No	Triad PART No	Halldorson PART No	Thordarson PART No	NOTES
T8	10.5KΩ C.T.	1.7Ω	PMB-51013 PMB-51005 ②	A-3830	A-2936	S-55X	Z10U	24S61 ①	① Drill one new mounting hole. ② Alternate used with single audio output tube.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA Pacific Mercury PART No	JENSEN PART No.	QUAM PART No	NOTES
SP1	6"	PM	3.4Ω	90031	ST-108 Mod. P6-X	6A1	
SP2	6"	PM	3.4Ω	90031	ST-108 Mod. P6-X	6A1	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA Pacific Mercury PART No.	MEISSNER PART No	MERIT PART No	MILLER PART No	NOTES
L1A	UHF Ant. Coil	0Ω						
B	UHF Mixer Coil	0Ω						
C	UHF Osc. Coil	0Ω						
L2	UHF Ant. Coil End Inductor	0Ω						
L3	UHF Mixer Coil End Inductor	0Ω						
L4	UHF Osc. Coil End Inductor	0Ω						
L5	Fil. Choke	.2Ω						
L6	Fil. Choke	.2Ω						
L7	Cathode Choke	.1Ω						.38 Microhenry
L8	RF Choke	.1Ω						.38 Microhenry
L9	UHF IF Coupling	0Ω						
L10	UHF IF Output Coil	0Ω	0Ω					
L11	VHF Ant. Trans.	0Ω CT	0Ω CT					
L12	UHF IF Coil	0Ω						
L13	VHF Ant. Coils	0Ω						
L14	VHF Ant. Coil	0Ω						Channel 13
L15	Fil. Choke	0Ω						1.1 Microhenries
L16	Neutr. Coil	0Ω						

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA Pacific Mercury PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L17	VHF RF Coil	0Ω						Channel 13
L18	VHF RF Coils	0Ω						
L19	VHF Mixer Grid Coil	0Ω						Channel 13
L20	VHF Mixer Grid Coil	0Ω						
L21	VHF Osc. Plate Coil	0Ω CT						Channel 13
L22	VHF Osc. Coil	0Ω						Channel 6
L23	VHF Osc. Coils	0Ω						
L24	Conv. Plate	.1Ω						
L25	1st. Video IF	0Ω		PMB-52051				Includes 41.25MC Trap
L26	2nd. Video IF	.1Ω	.1Ω	PMB-52050			6232 *	Includes 41.25MC Trap
L27	Fil. Choke	0Ω		PMB-52053	19-1002		4606	2.5 Microhenries
L28	3rd. Video IF	.1Ω	.1Ω	PMB-52049			6233 *	
L29	4th. Video IF	.1Ω	.1Ω	■PMB-52052-2			6234	
L30	Series Peaking Coil	0Ω		PMA-52023	19-3093	TV-181	4642	100 Microhenries
L31	Shunt Peaking Coil	14Ω		PMA-52024	19-3500	TV-188	4566	450 Microhenries
L32	4.5MC Trap	2Ω		PMA-52028	20-1004	TV-151	1469	
L33	Series Peaking Coil	8Ω		PMA-52069	19-3160	TV-182	4644	150 Microhenries, wound on 18KΩ resistor
L34	Shunt Peaking Coil	14Ω		PMA-52024	19-3500	TV-188	4566	450 Microhenries
L35	Sound IF	2Ω		PMA-52028	20-1004	TV-151	1469	
L36	Ratio Det.	2.4Ω	1.2ΩCT	PMA-52027	17-3497	TV-115	6205	Tertiary winding .6Ω
L37	Horiz. Osc.	18Ω	16Ω	PMB-52019	20-1402	TV-162	6183	Primary tapped Ⓐ50Ω
L38	Ant. Coil	.1Ω		PMB-52034				
L39	Osc. Coil	2.7Ω		PMA-52035	14-1033	BC-400	71-Osc.	Tapped Ⓐ.3Ω
L40	Input IF	14Ω	14Ω	PMD-52037	16-6758	BC-352	12-C1	
L41	Output IF	14Ω	14Ω	PMD-52037	16-6758	BC-353	12-C2	

* Add 15KΩ resistor externally.

■ Alternate part # PMB-52052-1 used in Chassis with serial number below 160, 725.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA Pacific Mercury PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L42	.310ADC	62Ω	2.4 Hy.	PMB-56018	C-2334	C-2996 ①	C-17X①	C5037 ①	26C44 ①

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA Pacific Mercury PART No. FUSE	Pacific Mercury PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG S/B	3/8A 125V	PMA-95002-2	PMA-97069	313.375 (3/8A-3AG-S/B)	357001	MDL 3/8	4405

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA Pacific Mercury PART No.	SYLVANIA PART No.	FEDERAL PART No.	NOTES
M2	1N72		1N82 or 1N82A	1N72A	UHF Mixer
M3	1N65	PMA-5750-2	1N34A	1N65A	Audio Det. (455KC)

MISCELLANEOUS

ITEM No.	PART NAME	Pacific Mercury PART No.	NOTES
M4	Dial Light		Bayonet #47 (2 used)
M5	Tuner	PMB-57006	VHF
	Tuner	PMC-57007	UHF
	Tuner	PMC-57008	UHF
	Tuner	PMC-57009	UHF
M6	Switch	PMB-60007	TV-Radio-Phono (Model 2701)
	Switch	PMA-60004	TV-Phono (Model 2424)
M7	Focus Magnet	PMC-56022	Includes centering device
M8	Ion Trap	PMA-56013	
M9	Tuning cap	PMB-44001	33-480 MMF, 35-195MMF

PROPERTY OF
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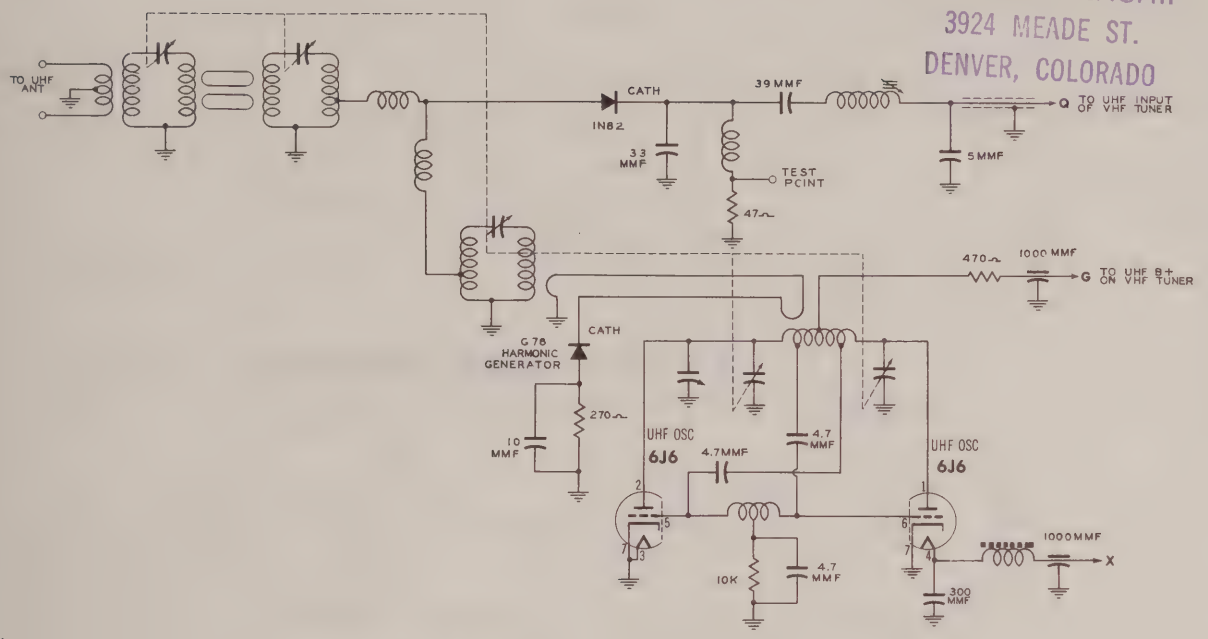
3924 MEADE ST.
DENVER, COLORADO



ALTERNATE UHF TUNER PART NO. PMC-57007

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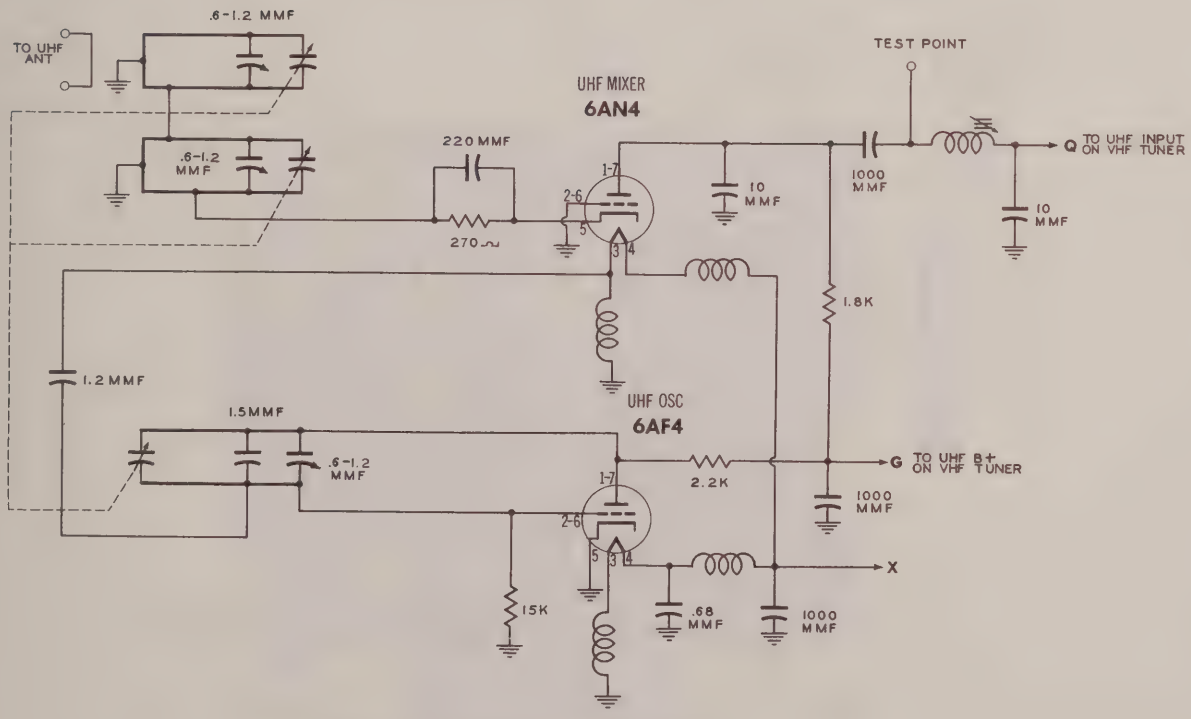
UHF ALTERNATE TUNER



ALTERNATE UHF TUNER RART NO. PMC-57008

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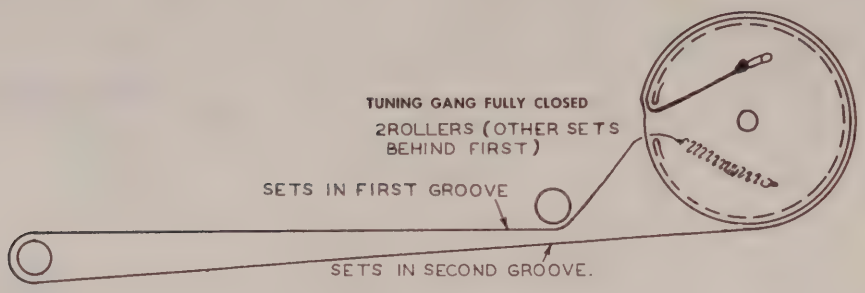
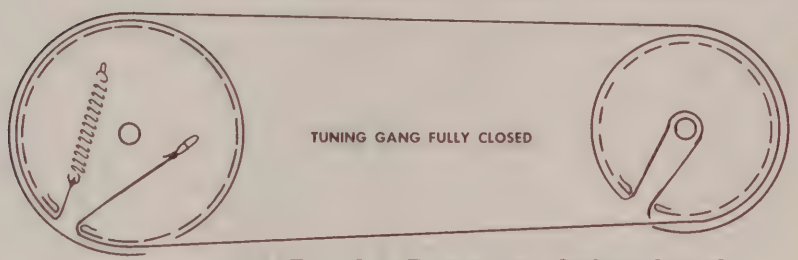
UHF ALTERNATE TUNER

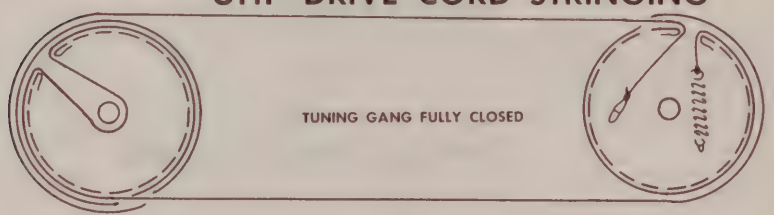
AM DRIVE CORD STRINGING
(DIAL POINTER MOVEMENT)

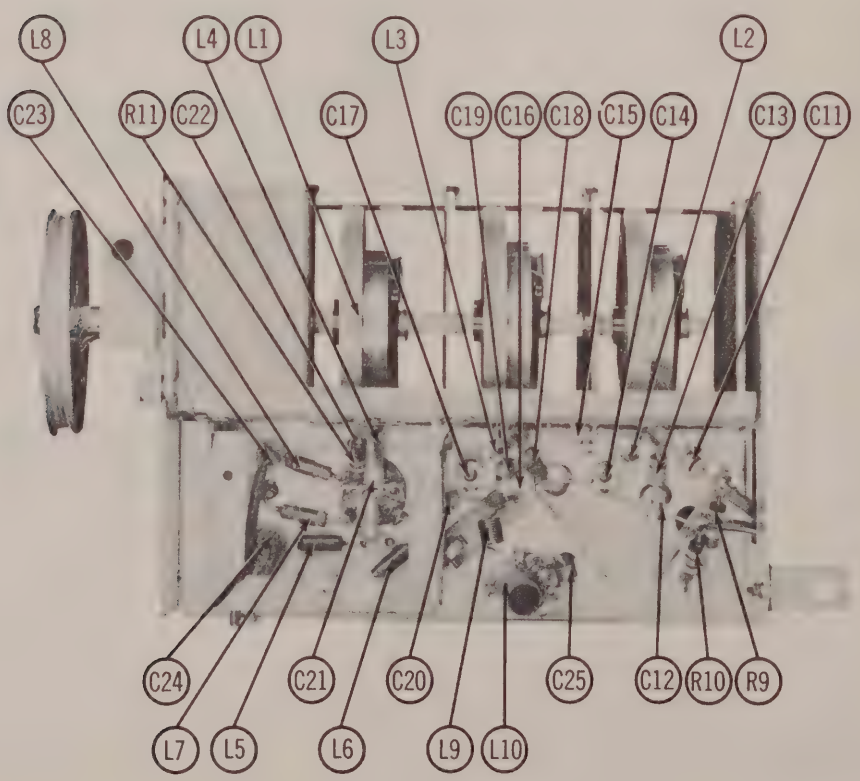


AM DRIVE CORD STRINGING



UHF DRIVE CORD STRINGING





UHF TUNER

PROPERTY OF
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DENVER, COLORADO

TROUBLE SHOOTING AIDS (cont)

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, check by substitution V24 and V25. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Check by substitution V24 and V25. Check B+ filter and decoupling network.

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V19, V20, V21, V22 and V23. Check waveform W14.

If Satisfactory	If Unsatisfactory
Check T3, T5A, T6, T7, R113, C113, C115, C116, C119 and other associated components.	Check L37, C111, C112, C109 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V20, V21, V22, V24 and V25. Check T3, T5A and other comonents associated with the horizontal output and damper stages

BLOOMING

Check by substitution V20, V21, V22, V23, V24 and V25. Check R113 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss Of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak Or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V2, V3, V4, V5, V6, V7 and V8. Check video IF components.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

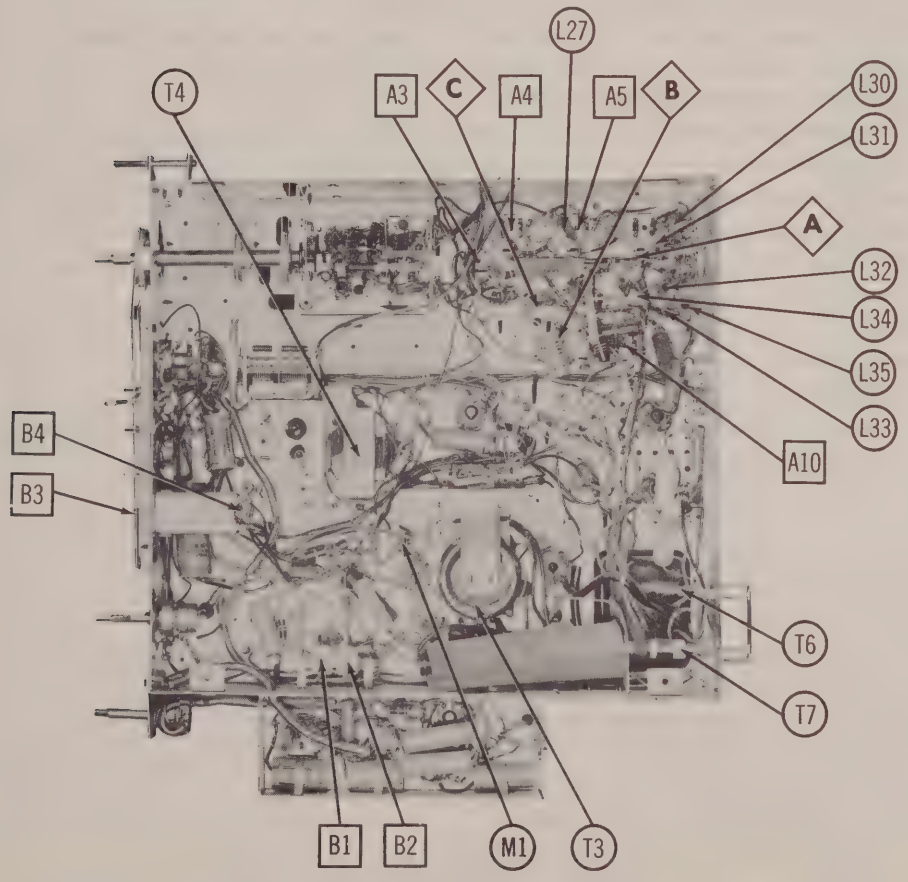
KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

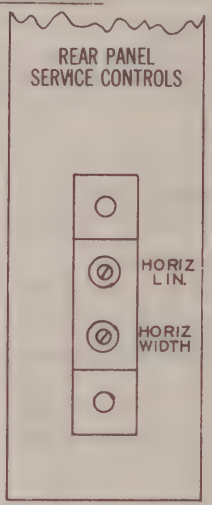
Remove 5 wood screws from changer compartment.

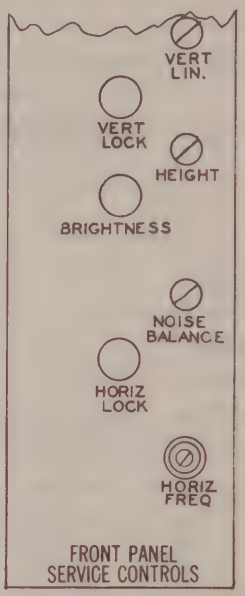
Remove changer compartment.

Remove 6 wood screws and 2 machine screws from picture tube mounting board.

Remove mounting board.

SERVICE LOCATION ADJUSTMENT





SPECIAL ADJUSTMENTS - NOISE BALANCE CONTROL ADJUSTMENT

Tune in strongest TV signal available. Turn noise balance control fully clockwise, then slowly counter clockwise until picture begins to distort. Turn the control clockwise just enough to eliminate the distortion.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the horizontal hold control at the center of its range and adjust the horizontal oscillator slug (L37) until picture synchronizes horizontally. (For location see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L36) located on top of chassis. (See tube placement chart).

FUSES

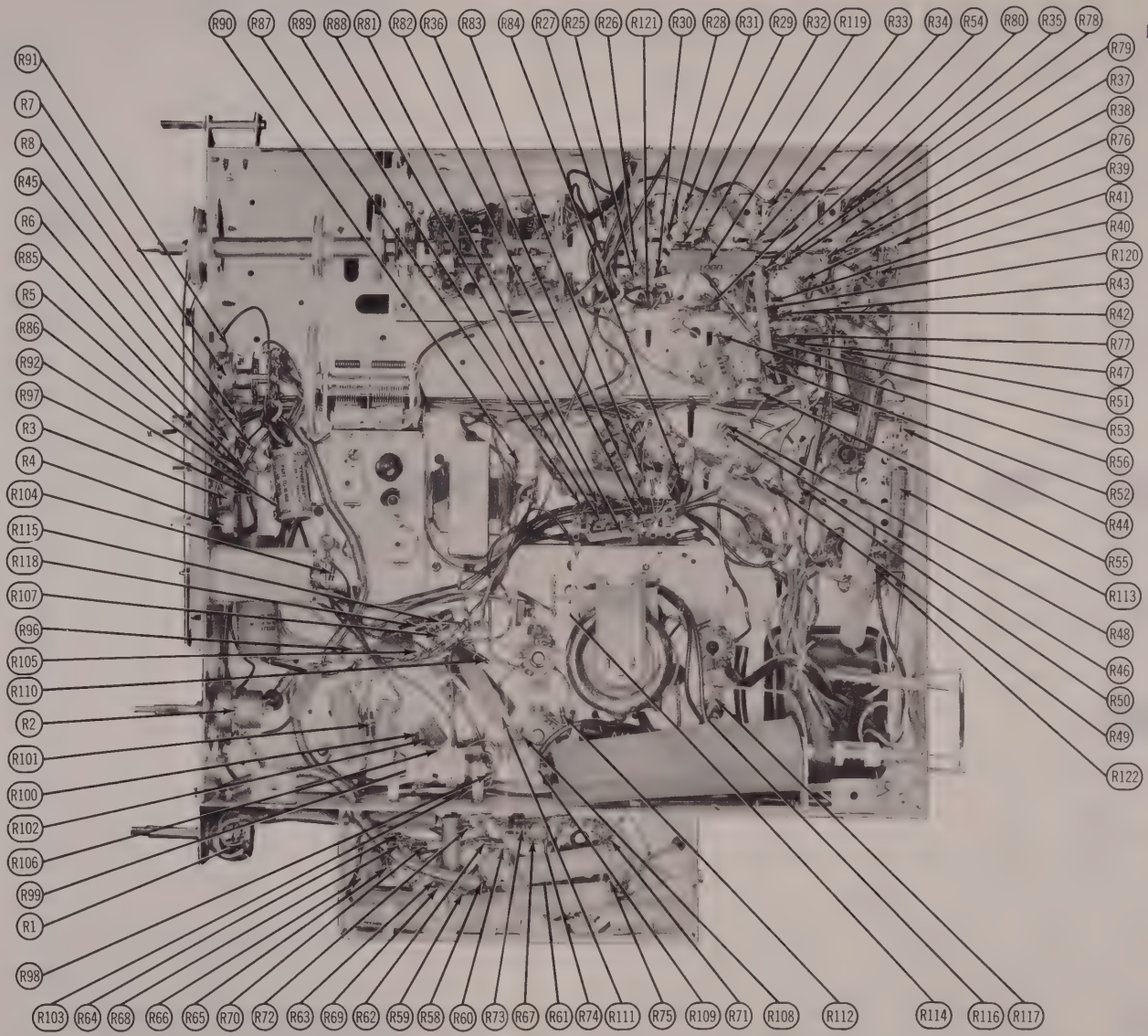
One fuse is used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

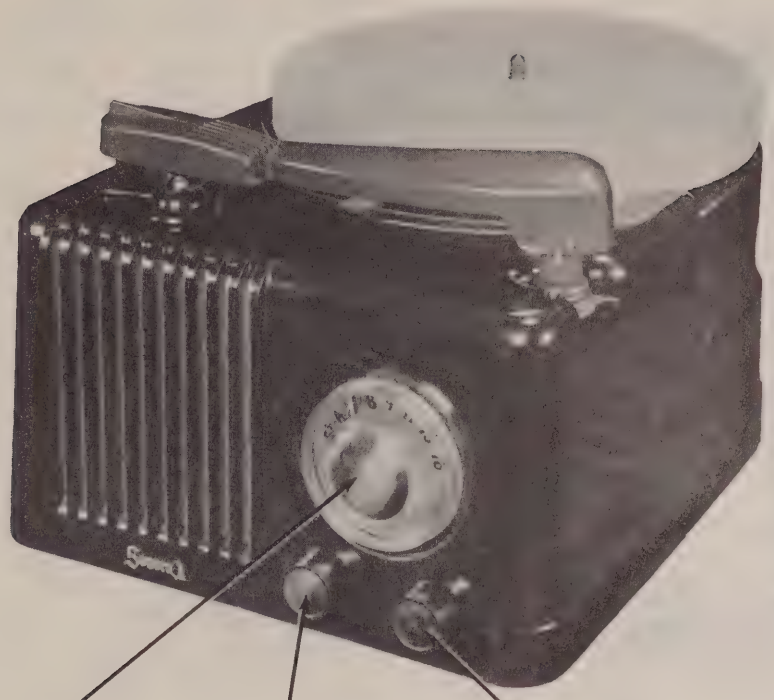
1. Remove 7 push-on type control knobs from front panel.
2. Remove 20 wood screws from top section rear cover.
3. Remove 22 wood screws from bottom section of rear cover to remove speaker. (Removal of bottom section is not necessary to remove TV chassis, only speakers.
4. Disconnect picture tube socket, deflection yoke, HV voltage lead, speaker plug, phono line plug and phono output plug.
5. Remove picture tube mount ground lead.
6. Disconnect built-in antenna lead.
7. Remove 3 wood screws from chassis mounting board.
8. Position radio dial pointer over control openings in escutcheon panel.
9. Remove chassis.
10. Remove 4 nuts from each speaker. Remove speakers.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F.
DENVER

PROPERTY OF
L. F. [illegible]



SONORA
MODEL 467

TRADE NAME	Sonora Model 467
MANUFACTURER	Sonora Radio & Tel. Corp., 325 N. Hoyne Ave., Chicago, Ill.
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver With 3 Speed Manual Record Player
TUBES (Four)	Types 12AU6 Conv., 12AV6 Det.-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MFD	High side to antenna stator lug on tuning gang. Low side to B-.	455KC (400%Mod)	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	"	"	A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1954 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: SONORA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12AU6	12AU6	7BK	
V2	Det-AF-Amplifier	12AV6	12AV6	7BT	
V3	Audio Output	50C5	50C5	7CV	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SONORA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	50	150	N-8890	PRS150/50-30-20		BBRT5515C		2N520 TC26	TVA-3430	Blue
B	20	150								Red
C	20	15								Green
C2	50		N-6385	SI50	D6-500	TP30	GP1K-500	UC-545	5GA-Q5	
C3	100		N-6015	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C4	.003	600	N-2063	P688-003	D6-302	CUB6D3	GP2-333-302	PT623	6TM-D3	
C5A	5000									
B	250		♦N-8215	♦PA-112-2	♦PC-71	♦112TM2	♦1406-02		♦T-4	
C										
C6	.01	400	N-1344	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C7	.05	400	N-1346	489ZX-05	DF-503	PJ4S5		PT415	4TM-S5	
C8	.08	200	N-8092							

♦ Items C5A, C5B, C5C, R6A and R6B are combined in one unit.
When replacing items separately C5B and C5C should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SONORA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2 Meg	½	N-8854	Q13-139	A47-2Meg-Z	AB-76	U-55	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A

RESISTORS

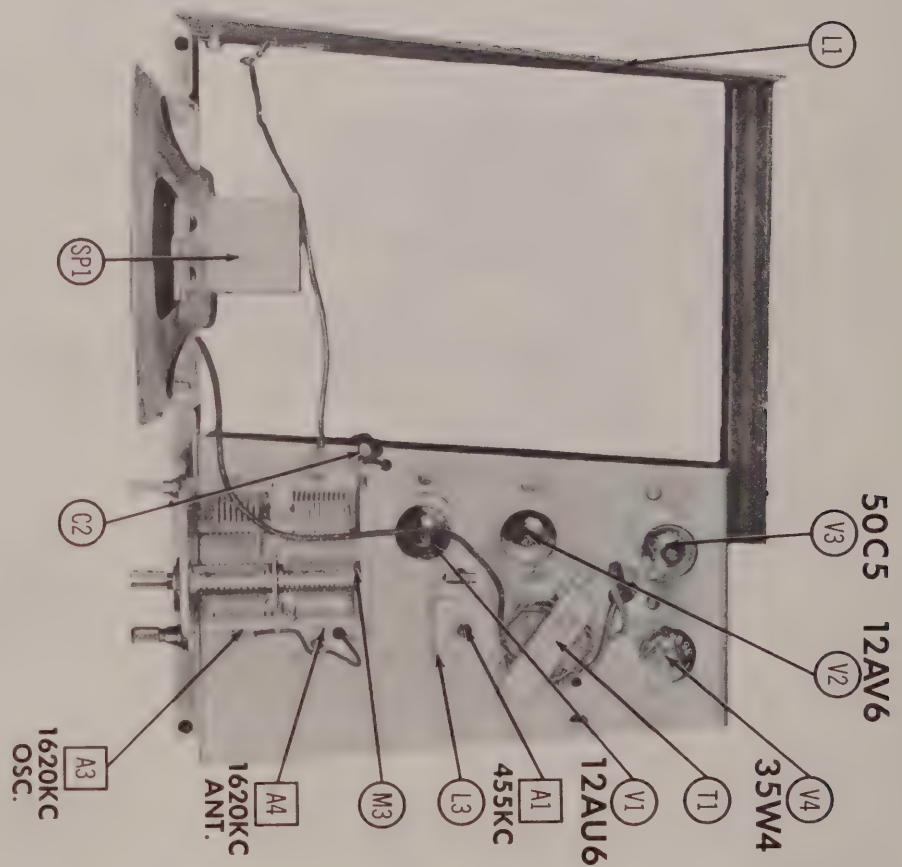
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SONORA PART No.	IRC PART No.	NOTES
R2	2.2Meg	½	N-4277	BTS-2.2Meg	
R3	1 Meg	½	N-1262	BTS-1 Meg	
R4	1 Meg	½	N-1262	BTS-1 Meg	
R5	6.8Meg	½	N-4028	BTS-6.8Meg	
R6A	250KΩ	½	♦N-8215		
B	500KΩ	½			

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SONORA PART No.	IRC PART No.	NOTES
R7	180Ω	½	N-4067	BTS-180	
R8	2200Ω	½	N-4896	BTS-2200	
R9	33Ω	½	N-4022	BTS-33	
R10	68Ω	2	N-6014		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: SONORA PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T1	2.4KΩ	4Ω	N-8887	A-3332	A-3025	S-12X	Z1101	24S50 ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SONORA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	4Ω	N-8697	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SONORA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	.4Ω	1.9Ω	N-8850				
L2	Osc. Coil	1Ω	7.5Ω	N-8552				Pickup winding=2.4Ω
L3	IF Trans.	28Ω	28Ω	N-7694	16-6758 *†	BC-353 †	12-C2 †	Pri. tapped @ 1Ω

† Connect B+ line to pin 6 of V1.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	SONORA PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	60H31	GC-AG-J	G-AG	WC36B	A56W	43	0-2 or S-2	

ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGES NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

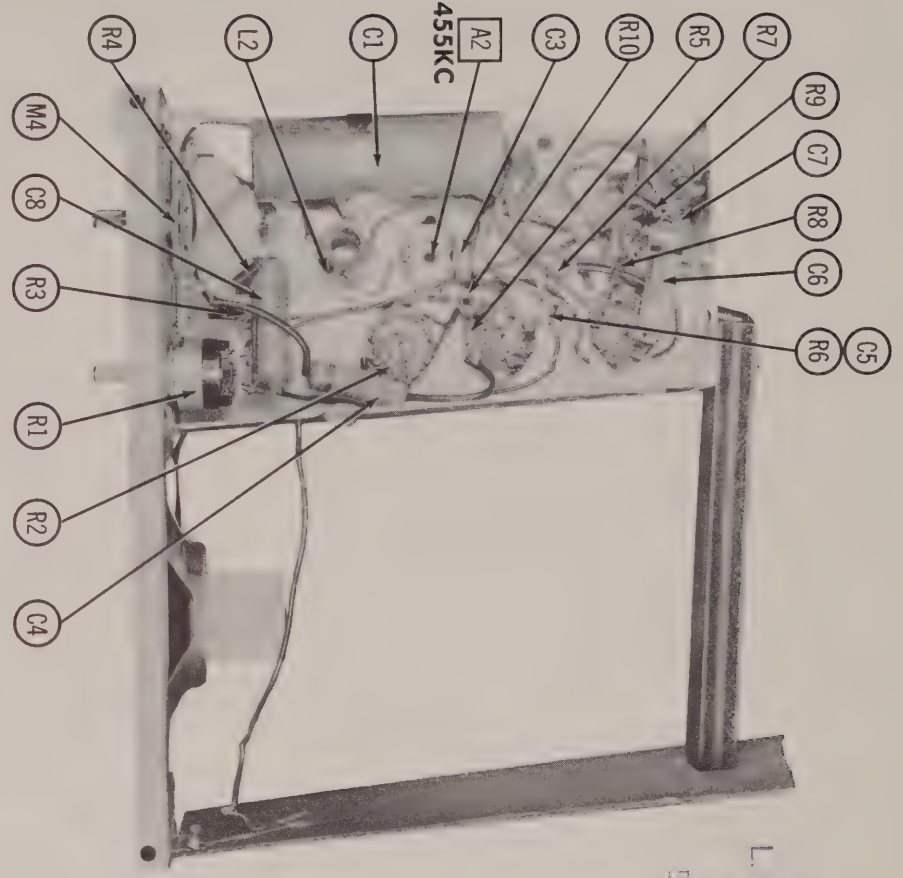
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	SONORA PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M2	61H33	†A-742 or *A-842	*B-326 or †B-334 or ♦B-344D	*W-3AGA or †W-3AGS	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	SONORA PART No.	NOTES
M3	Tuning cap	N-8551	(18-364MMF, 9-100MMF)
M4	Switch		Radio-phono
	Cabinet	# 467	Plastic
	Dial scale	N-8437	

CHASSIS—BOTTOM VIEW



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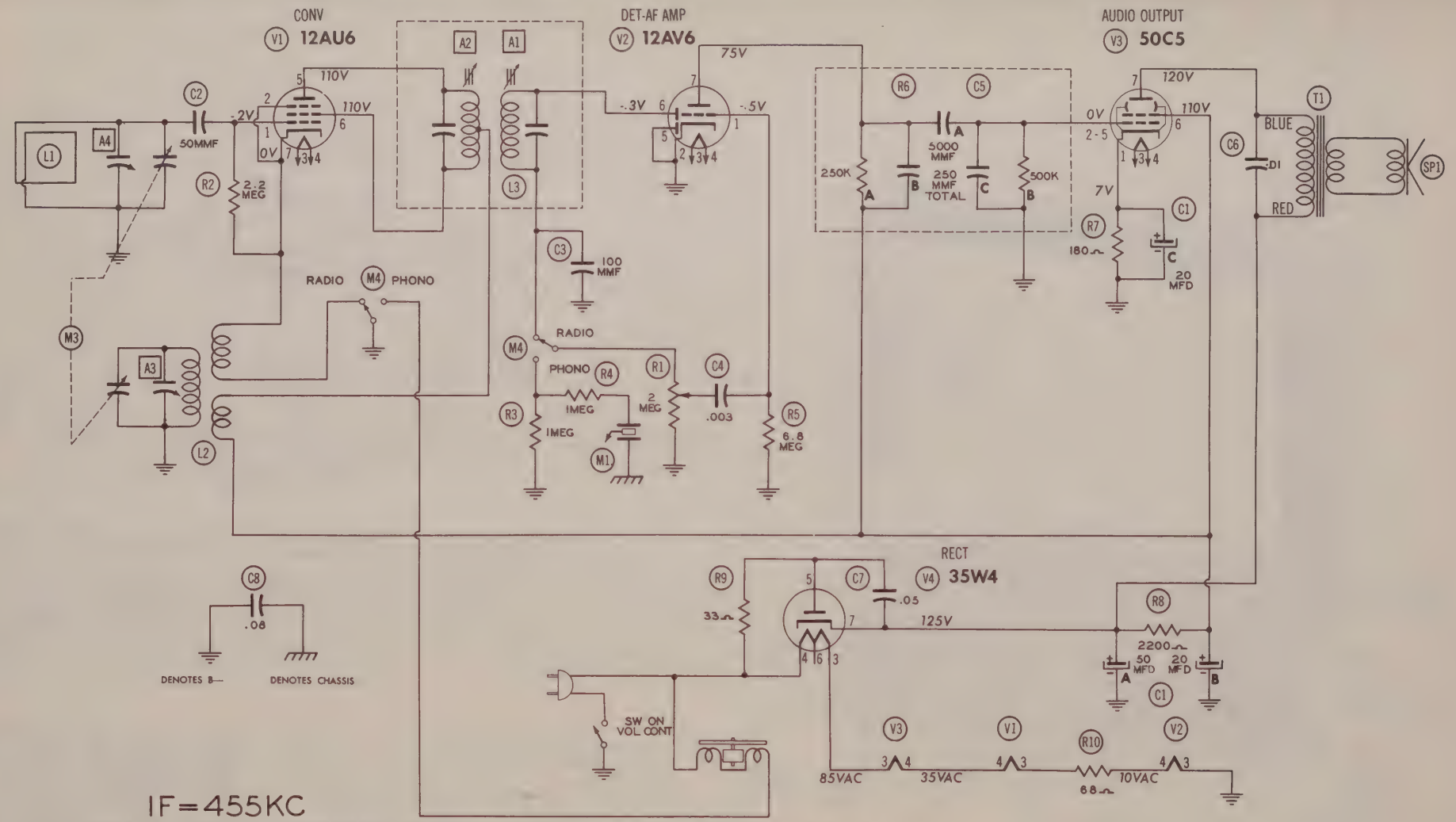

IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AU6	2.2Meg	1Ω	88Ω	100Ω	†2.2KΩ	†2.2KΩ	1Ω
V 2	12AV6	6.8Meg	0Ω	0Ω	12Ω	0Ω	2Meg	†250KΩ
V 3	50C5	180Ω	500KΩ	145Ω	100Ω	500KΩ	†2.2KΩ	†190Ω
V 4	35W4	0Ω	INF	145Ω	175Ω	200Ω	170Ω	150KΩ

† MEASURED FROM PIN 7 OF V4

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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PHOTOFACT* Folder

STEWART-WARNER MODELS 24C-9360A, AB, 24C-9370A, AB, 27C-9310A, AB, 27C-9350A, AB

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DENVER, COLORADO

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MODEL 24C-9370AB

STEWART-WARNER MODELS 24C-9360A, AB, 24C-9370A, AB, 27C-9310A, AB, 27C-9350A, AB

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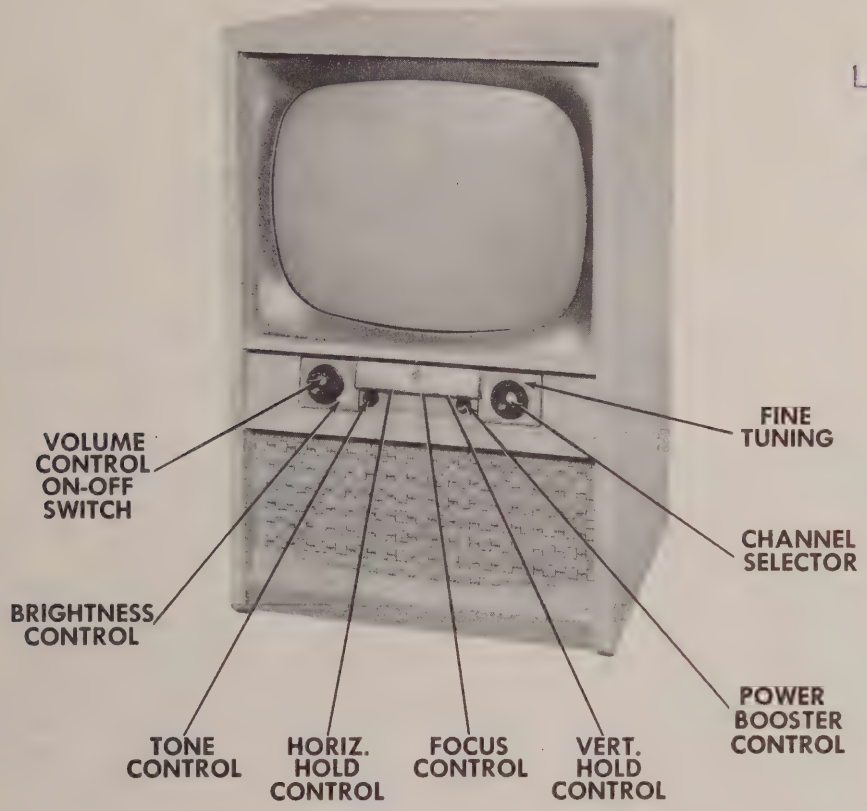

STEWART-WARNER MODEL 24C-9370AB

TRADE NAME	Stewart-Warner	MODELS
		24C-9360A, 24C-9360AB, 27C-9350A, 27C-9350AB ..... Series A thru F
		24C-9370A, 24C-9370AB, 27C-9310A, 27C-9310AB ..... Series A thru D
MANUFACTURER	Stewart-Warner Electric, Div. of Stewart-Warner Corp., 1300 N. Kostner Ave., Chicago 15, Ill.	
TYPE SET	Television Receiver	
TUBES	Twenty	
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING 2.17 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 26.0MC, Sound IF 21.5MC (Intercarrier)	

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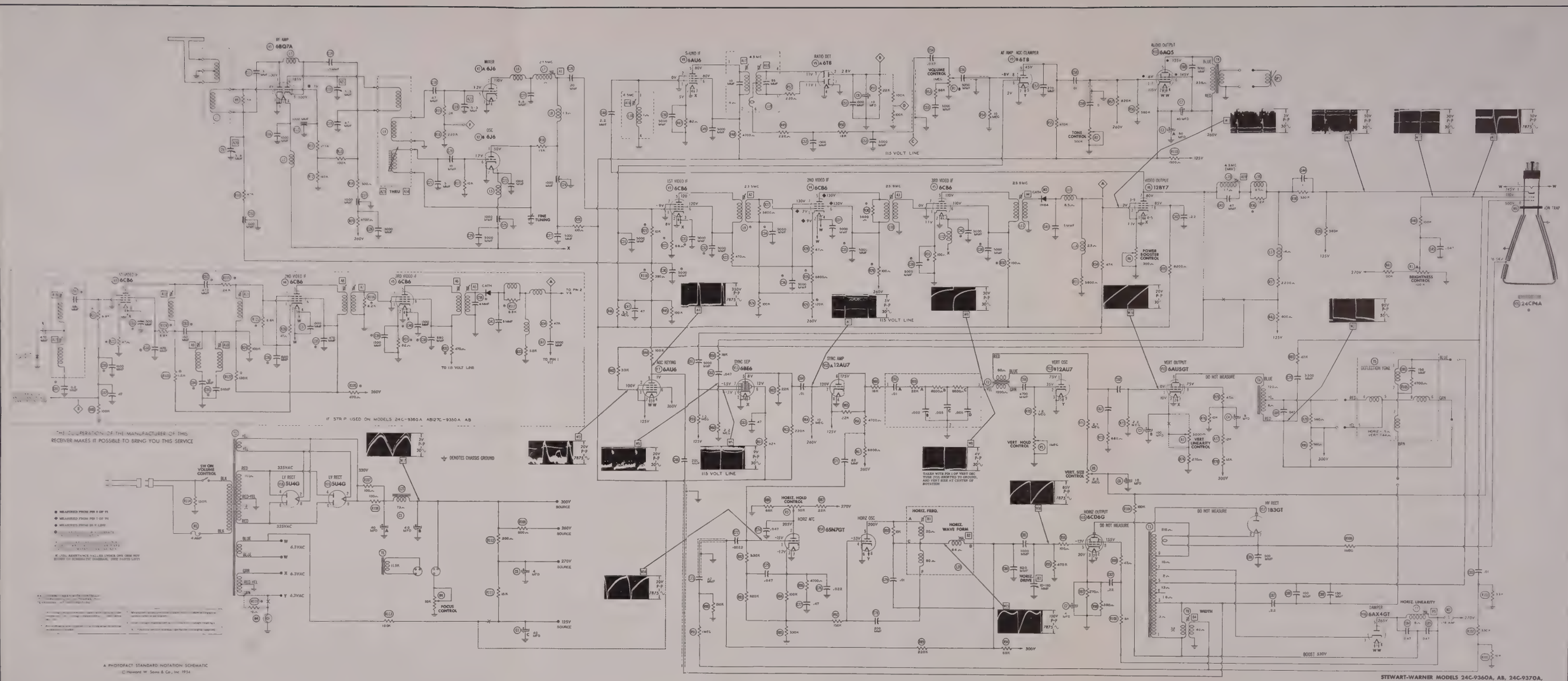
DATE 10-54 SET 254 FOLDER 11

STEWART-WARNER MODELS 24C-9360A, AB, 24C-9370A, AB, 27C-9310A, AB, 27C-9350A, AB



STEWART-WARNER MODELS 24C-9360A, AB, 24C-9370A, AB, 27C-9310A, AB, 27C-9350A, AB (Series A, AB)

STEWART-WARNER MODELS 24C-9360A, AB, 24C-9370A, AB, 27C-9310A, AB, 27C-9350A, AB

CHASSIS TOP VIEW

STEWART-WARNER MODELS 24C-9360A, AB,
24C-9370A, AB, 27C-9310A, AB, 27C-9350A, AB

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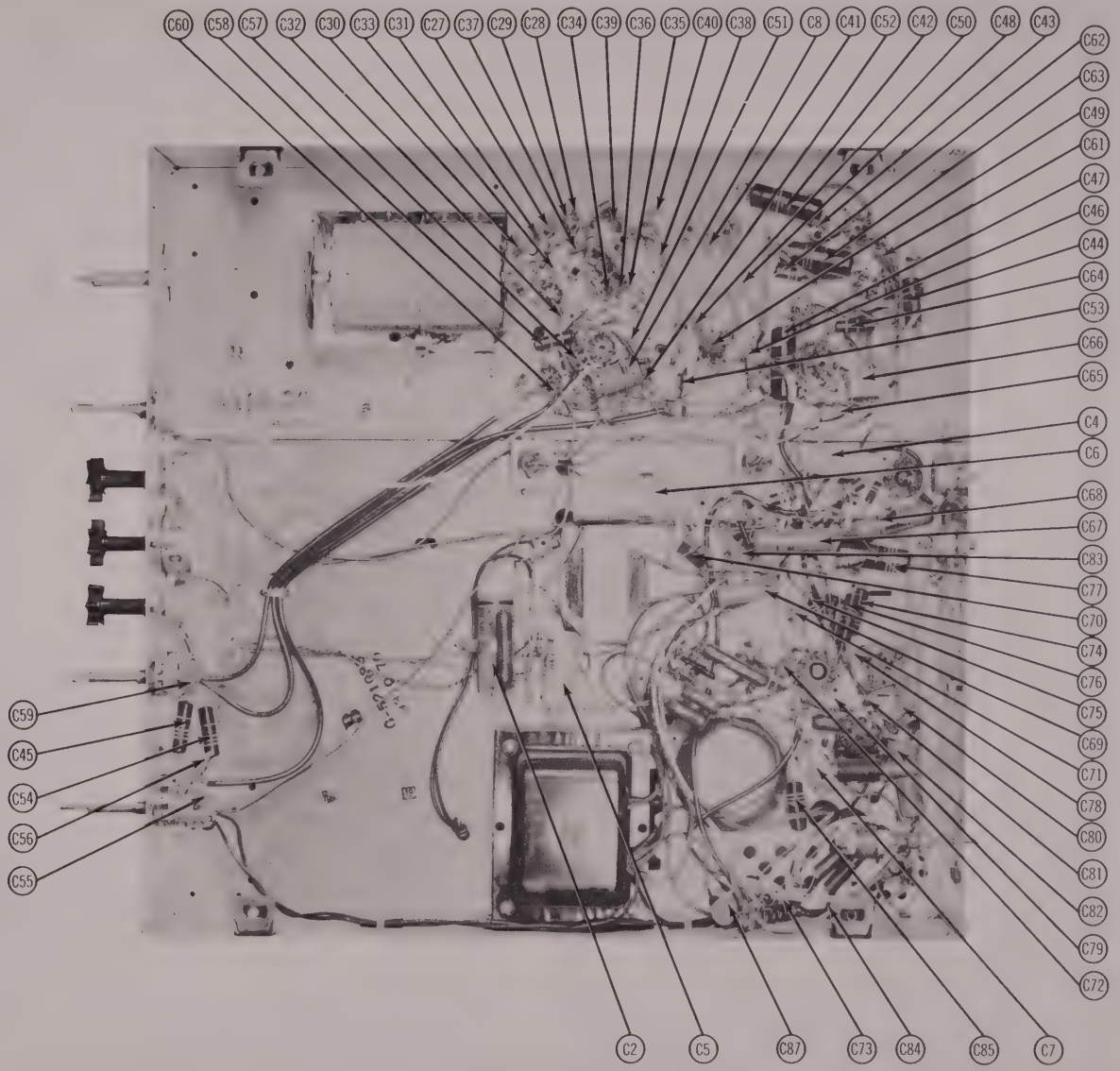

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

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ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube (V14) to disable the high voltage.

VIDEO IF ALIGNMENT FOR MODELS 24C-9370A, AB, 27C-9310A, AB

Remove the converter tube (V2) and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications. An alternate method may be used to disable the local oscillator. Leave the original 6J6 in its socket and place a strip of transparent cellulose tape on the first two contacts (from front) of any unused channel strip then switch the tuner to that channel.
Short the antenna terminals to chassis . Connect the negative lead of a 3 volt battery to the ungrounded side of C47. Connect the positive lead to chassis. If the IF stages should break into oscillation during alignment it will be indicated by excessive deflection on the VTVM. Also, the voltage due to IF oscillation will be unaffected by signal strength from the generator. When IF oscillation is encountered it may be eliminated by detuning the IF coils in different directions or increasing the bias from 3 volts to 4. 5 volts. If the stages are aligned using 4. 5 volts bias the IF channel should be stable with the bias reduced to 3 volts.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	23. 5MC (Unmod)	Any	DC probe thru 10KΩ to point Ⓐ. Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	25. 9MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK FOR MODELS 24C-9370A, AB, 27C-9310A, AB

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Connect a . 001MFD capacitor across the vertical amplifier input terminals of oscilloscope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to an ungrounded tube shield floating over dummy coverter tube. Low side to chassis.	24MC (10MC Swp)	21.5MC 26.0MC	Any	Vert. Amp. thru 10KΩ to point Ⓐ. Low side to chassis.		Check for response curve similar to Fig.1 . If necessary, retouch A1 thru A4 to obtain desired response. Continue alignment with step 9. Remove cellulose tape placed on channel strip contacts.

VIDEO IF ALIGNMENT FOR MODELS 24C9360A, AB, 27C-9350A, AB

Remove tuner bottom shield to expose tuner channel strips. Place a piece of transparent cellulose tape over the first two contacts (from front) of VHF channel strip (choose any unused channel).
During IF alignment switch tuner to this insulated channel strip. This will disable the local oscillator and reduce the possibility of erroneous indications.
Short the antenna terminals to chassis.
Connect the DC probe of a VTVM thru 10KΩ to point Ⓐ. Common to chassis. Attenuate sweep generator output to maintain not more than 1 volt at VTVM during alignment.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to pin 1 (grid) of 3rd. Video IF Amp. Low side to chassis.	43.5MC (10MC Swp)	42MC 45MC	Use channel with insulated channel strip	Vert. Amp. thru 10KΩ to point Ⓐ. Low side to chassis. (Connect VTVM across vert. input of scope)	A5, A6	Attach detuning clip (alligator clip) to pin 5 (plate) of 2nd. Video IF amp. (6CB6). Adjust for maximum amplitude response curve similar to Fig.2. Remove detuning clip.
2.	100MMF	High side to pin 1 (grid) of 2nd. Video IF Amp. Low side to chassis.	"	42.0MC 43.5MC 44.9MC	"	"	A7, A8	Connect the negative lead of a 3 volt battery to point Ⓔ . Connect the positive lead to chassis. Adjust for response similar to Fig. 3.
3.	Direct	High side to pin 1 (grid) of first video amp. Low side to chassis.	Not used	41.25MC (Unmod)	"	"	A9	Remove bias battery and adjust for MINIMUM deflection at VTVM.
4.	"	"	"	47.25MC (Unmod)	"	"	A10	"
5.	"	"	43.5MC (10MC Swp)	42.5MC 44.5MC	"	"	A11, A12	Reconnect bias battery as in step 2. Adjust for maximum amplitude response curve similar to Fig.4.
6.	"	High side to an ungrounded tube shield floating over converter tube (6U8). Low side to chassis.	Not used	39.75MC (Unmod)	"	"	A13	Remove bias battery and adjust for MINIMUM deflection at VTVM.
7.	"	"	43.5MC (10MC Swp)	42.5MC 44.5MC	"	"	A14, A15	Reconnect bias battery as in step 2. Adjust for maximum amplitude response curve similar to Fig.5.
8.	"	"	"	39.75MC 41.25MC 45.75MC 47.25MC	"	"		Check for response curve similar to Fig.6. If necessary, retouch A5 thru A8, A11, A12, A14 and A15 to obtain desired response. Remove bias battery and use high scope gain and generator output to view 39.75MC, 41.25MC and 47.25MC markers. If necessary repeat steps 3, 4 and 6. Remove cellulose tape placed on channel strip contacts.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Set power booster control fully counter clockwise.
Connect two matched 100KΩ (±1%) resistors in series from point Ⓑ to chassis. The junction of these two resistors is alignment point Ⓓ as shown on the schematic.
Remove the 3rd video IF amplifier tube (V5) from its socket.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	. 001MFD	High side to point Ⓐ. Low side to chassis.	4. 5MC (Unmod)	Any	DC probe thru 10KΩ to point Ⓑ. Common to chassis.	A16, A17	Adjust for maximum deflection.
10.	"	"	"	"	DC probe to point Ⓒ. Common to point Ⓓ.	A18	Adjust for zero reading. A positive reading will be obtained on either side of the correct setting. Replace V5 in its socket final adjustment of A18 should be made with a TV station tuned in. Adjust A18 for clearest sound with MINIMUM buzz.

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ALIGNMENT INSTRUCTIONS (cont)

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Set power booster control fully counter clockwise.
Remove the third video IF amplifier tube (V5) from its socket. Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.001MFD	High side to point ⓐ. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. thru 10KΩ to point ⓓ. Low side to chassis.	A16, A17	Disconnect stabilizing capacitor C8. Adjust for response curve of maximum amplitude and symmetry similar to Fig.7.
10.	"	"	"	"	"	Vert. Amp. thru 10KΩ to point ⓓ. Low side to chassis.	A18	Reconnect stabilizing capacitor C8. Adjust so that 4.5MC occurs at center of cross-over lines as in Fig.8, SLIGHTLY retouch A17 for maximum amplitude and straightness of crossover lines. Replace V5 in its socket. Final adjustment of A18 should be made with a TV station tuned in. Adjust A18 for clearest sound with MINIMUM buzz.

4.5MC TRAP ALIGNMENT

Remove the third video IF amplifier tube (V5) from its socket.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	.001MFD	High side to point ⓐ. Low side to chassis.	4.5MC (Unmod)	Any	DC probe thru detector (Fig. 9). Low side to chassis.	A19	Adjust for MINIMUM deflection.

TUNER ALIGNMENT FOR MODELS 24C-9370A, AB, 27C-9310A, AB

The channel oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Leave the bias battery connected as under "Video IF Alignment".
Connect a .001MFD capacitor across the vertical input terminals of the oscilloscope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

RF AND MIXER ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point ⓓ. Low side to chassis.	A20, A21, A22	Adjust for response curve similar to Fig.10 with markers above 80%.
13.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		If markers fall below 70% on any channel make compromise adjustments of A20, A21 and A22 with channel switch set to that channel, then check all other channels to see that they have not been seriously affected.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT

14.	Two 120Ω Carbon Resistors	Across antenna terminals twith 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point ⓓ. Low side to chassis. (Connect VTVM across vert. input terminals of scope)	A23	Attenuate signal generator output to maintain not more than 0.5 volt at VTVM. Adjust to place video marker at 50% on response curve with sound marker as shown in Fig.11.
			213MC (10MC Swp)	211.25MC 215.75MC	13		A24	
			207MC (10MC Swp)	205.25MC 209.75MC	12		A25	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A26	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A27	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A28	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A29	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A30	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A31	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A32	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A33	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A34	

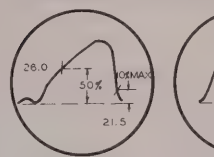


FIG.1

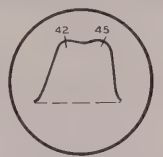


FIG.2

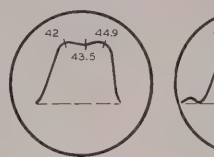


FIG.3

FIG.4

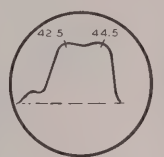


FIG.5

FIG.6

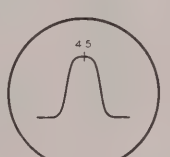


FIG.7

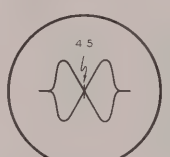


FIG.8

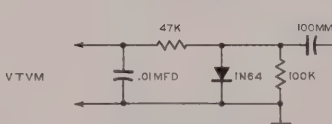


FIG.9

VHF TUNER ALIGNMENT FOR MODELS 24C-9360A, AB, 27C-9310, AB

Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A35. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel. If adjustment of A35 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel oscillator adjustment screws are reached through a hole just above and slightly to the left of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the negative lead of a 3 volt battery to point ⓓ. Connect the positive lead to chassis.
Connect a .001MFD capacitor across the vertical input terminals of the oscilloscope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

RF AND MIXER ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point ⓓ. Low side to chassis.	A20, A21, A22	Adjust for response curve similar to Fig.10 with markers above 90%.
13.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		If markers fall below 70% on any channel make compromise adjustments of A20, A21 and A22 with channel switch set to that channel, then check all other channels to see that they have not been seriously affected.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

OSCILLATOR ALIGNMENT

14.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point ⓓ. Low side to chassis. (Connect VTVM across vertical input terminals of scope)	A23	Attenuate generator output to maintain not more than 1 volt at VTVM. Adjust to place sound marker in trap notch as in Fig.12. Video marker should be at 50%.
			213MC (10MC Swp)	211.25MC 215.75MC	13		A24	
			207MC (10MC Swp)	205.25MC 209.75MC	12		A25	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A26	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A27	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A28	
			177MC (10MC Swp)	175.26MC 179.75MC	7		A29	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A30	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A31	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A32	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A33	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A34	

UHF TUNER ALIGNMENT FOR MODELS 24C-9360A, AB, 27C-9310, AB

The UHF tuner has been properly aligned at the factory and is very stable. If it ever becomes necessary to align this portion the unit should be returned to the factory.

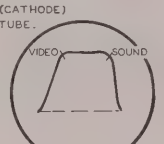


FIG.10

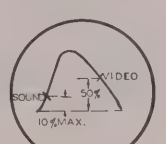
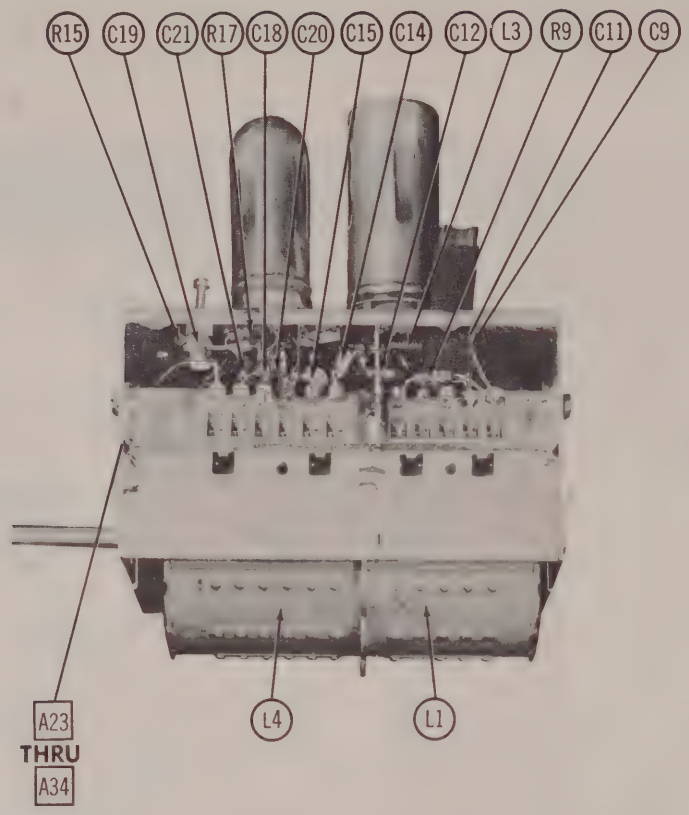


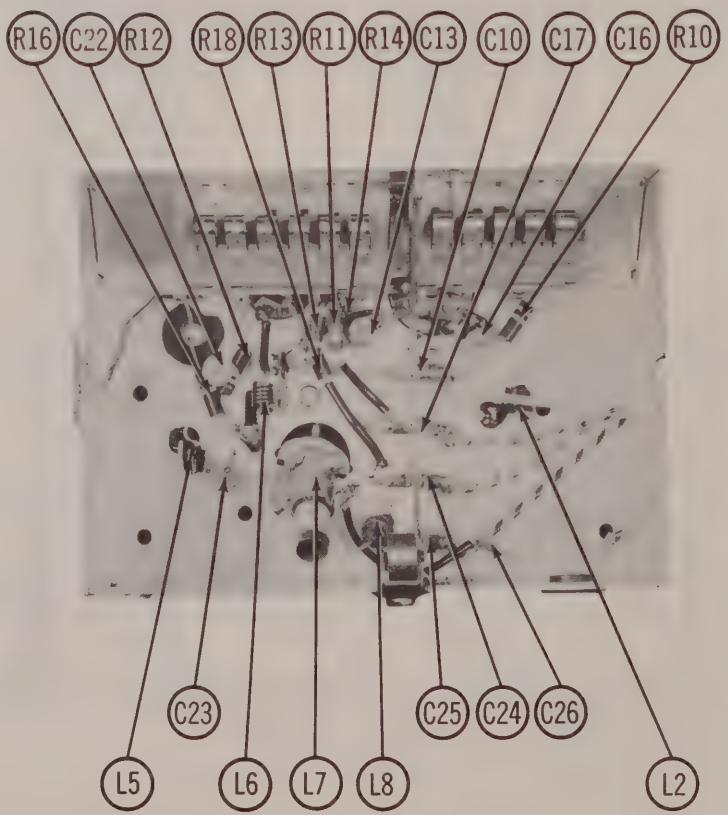
FIG.11

FIG.12

STEWART-WARNER MODELS 24C-9360A, AB, 24C-9370A, AB, 27C-9310A, AB, 27C-9350A, AB (Series A, AB)

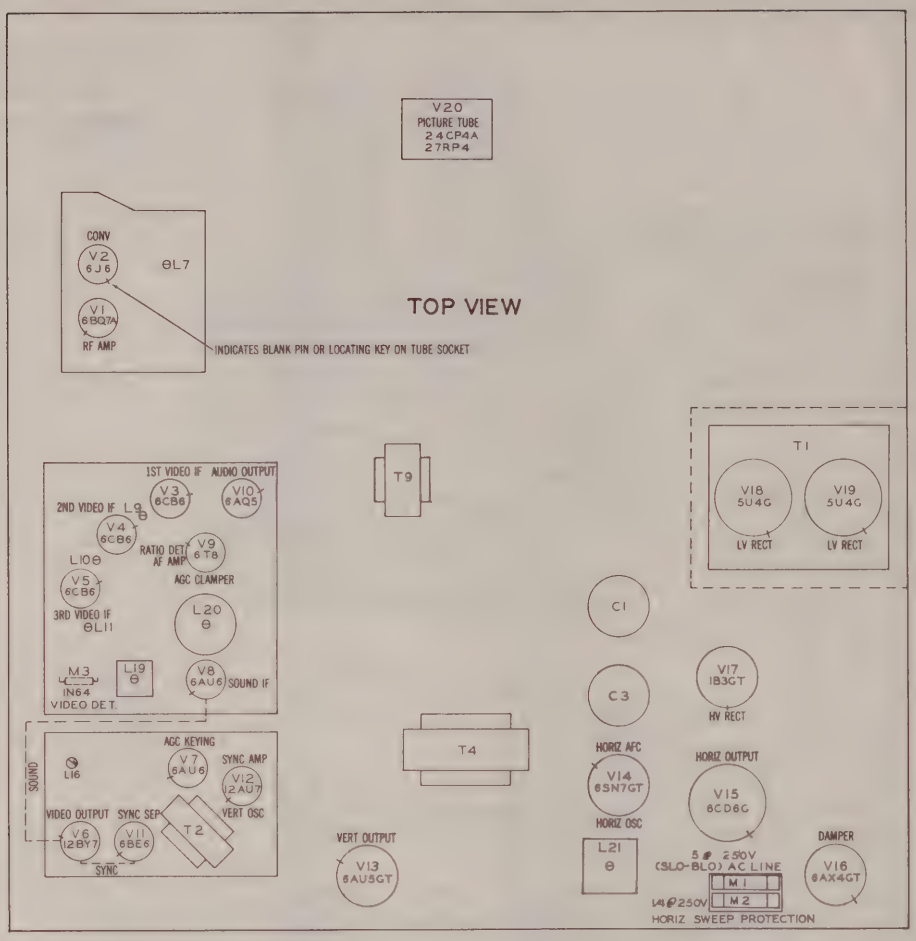


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V18, V19, Fuse (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V10
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster -V6, V20
Has pic, no sound - V8, V9, V10
Overloaded picture - V7, V9

SYNC FAILURE
No vert. sync - V12
No horiz. sync - V12, V14
No vert. or horiz. sync -V11, V12

SWEEP FAILURE
No raster, has sound - V14, V15, V16, V17, V20, Fuse (M2)
No vertical deflection - V12, V13
Poor vert. linearity or foldover - V12, V13
Poor horiz. linearity or foldover - V14, V15, V16
Narrow picture - V14, V15, V16, V17, V18, V19
Vert. off freq. - V12
Horiz. off freq. - V12, V14

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	INF.	150KΩ	0Ω	.1Ω	0Ω	† 6. 9KΩ	180KΩ	INF.	
V 2	6J6	▲ 15KΩ	▲ 100Ω	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6CB6	110KΩ	68Ω	.1Ω	0Ω	■ 470Ω	■ 470Ω	0Ω		
V 4	6CB6	70KΩ	80KΩ	† 115KΩ	† 115KΩ	† 800Ω	† 800Ω	80KΩ		
V 5	6CB6	.5Ω	100Ω	.1Ω	0Ω	▲ 100Ω	▲ 100Ω	0Ω		
V 6	12BY7	90Ω	5. 6KΩ	90Ω	.1Ω	.1Ω	0Ω	† 14KΩ	▲ 8. 2KΩ	90 Ω
V 7	6AU6	† 45KΩ	† 15KΩ	† 115KΩ	† 115KΩ	200KΩ	† 720Ω	† 15KΩ		
V 8	6AU6	1Ω	0Ω	.1Ω	0Ω	▲ 4. 7KΩ	▲ 4. 7KΩ	82Ω		
V 9	6T8	INF.	22KΩ	INF	0Ω	.1Ω	100KΩ	0Ω	10 Meg	▲ 470KΩ
V 10	6AQ5	350KΩ	† 11. 5KΩ	† 115KΩ	† 115KΩ	† 1KΩ	† 720Ω	350KΩ		
V 11	6BE6	† 1. 5Meg	0Ω	.1Ω	0Ω	22KΩ	▲ 82KΩ	2. 2Meg		
V 12	12AU7	◓ 3. 9Meg	2 Meg	0Ω	0Ω	0Ω	† 10KΩ	† 10 Meg	† 10KΩ	.1Ω
V 13	6AU5CT	2. 2Meg	0Ω	450Ω	8KΩ	† 900Ω	INF.	.1Ω	8KΩ	
V 14	6SN7GT	1. 5 Meg	† 27KΩ	430KΩ	480KΩ	68KΩ	0Ω	0Ω	.1Ω	
V 15	6CD6G	INF.	.1Ω	160Ω	470KΩ	470KΩ	† 8, 5KΩ	0Ω	† 8. 5KΩ	TOP CAP ◓ 10Ω
V 16	6AX4GT	160Ω	INF.	800KΩ	INF.	330Ω	INF.	† 115KΩ	† 115KΩ	
V 17	1B3GT	PINS 1-8 HAVE INF. RESISTANCE								TOP CAP ◓ 520Ω
V 18	5U4G	INF.	7. 5KΩ	INF.	12Ω	INF.	11Ω	INF.	7. 5KΩ	
V 19	5U4G	INF	7. 5KΩ	INF.	12Ω	INF.	11Ω	INF.	7. 5KΩ	
V 20	24CP4A	† 115KΩ	† 160KΩ	PIN 10 ◓ 100KΩ	PIN 11 † 230KΩ	PIN 12 † 115KΩ				

† MEASURED FROM PIN 8 OF V19.
▲ MEASURED FROM 115V LINE.
■ MEASURED FROM PIN 2 OF V4.
◓ MEASURED FROM PIN 3 OF V16.

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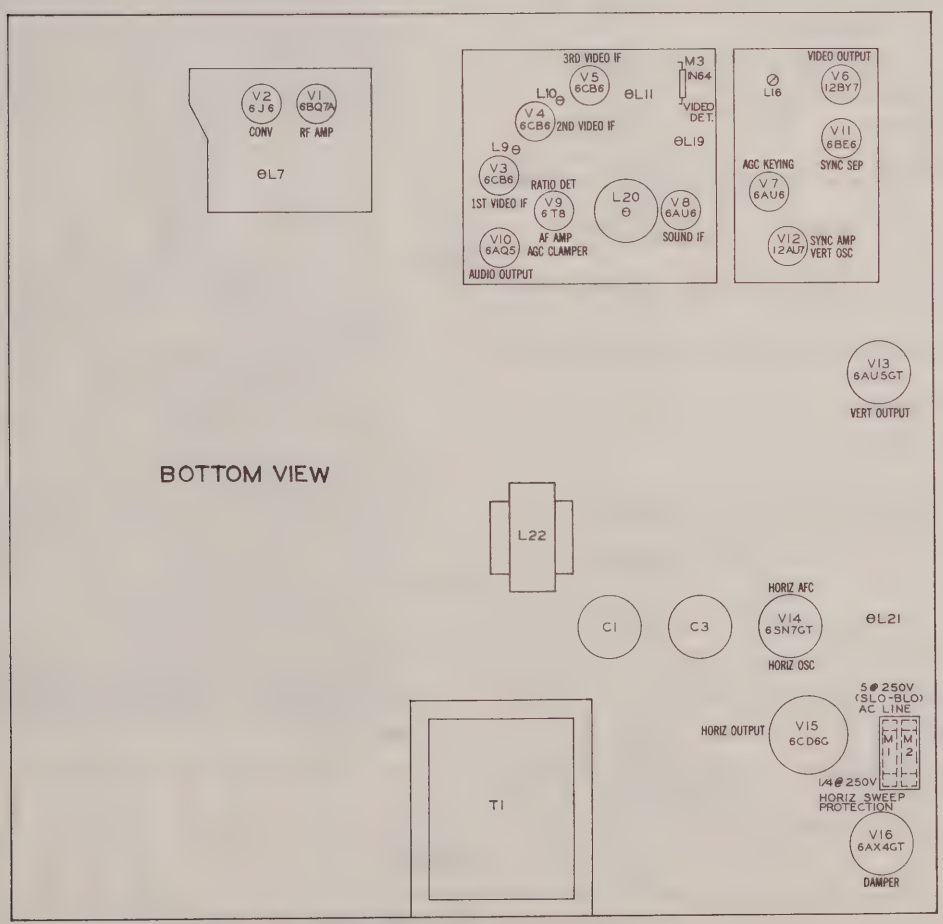
DENVER, COLORADO



TUBE PLACEMENT CHART

SET 254 FOLDER 11

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss Of High Voltage".

INSUFFICIENT SWEEP

Check adjustments B3, B4 and B5. Check by substitution V15, V16, V18 and V19. Check T3, T5A, R100 and other associated components.

DRIVE LINES

Check adjustments B3, B4 and B5. Check by substitution V15 and V16. Check C81, C82, C7 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V15 and V16. Check horizontal output and damper stages for component failure or change of value. Check adjustments B3 and B5.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V14, V15 and V16. Check C73 for open. Check R85, R84 and other associated components.

XMAS TREE EFFECT

Check by substitution V14, V15 and V16. Check L20, C79, C82, C78, R85 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V12 and V13. Check waveform W10.

If Satisfactory	If Unsatisfactory
Check T4, T5B, R78, R77, R76, C4 and other associated components.	Check T2, C68, R71, R8 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V12 and V13. Check vertical size and vertical linearity controls for proper operation. Check T4 and T5B.

COMPRESSED AT BOTTOM

Check by substitution V12 and V13. Check R71, R8, C68 and other associated components.

COMPRESSED AT TOP

Check by substitiution V12 and V13. Check C3B, R7, R74 and other associated components.

FOLDS

Check by substitution V12 and V13. Check C67, R72, C68 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V11 and V12. Check C62, C64, C63, C61, R58, R61, R66, R67 and other associated components.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Substitute V12. Check waveform W8.

If Satisfactory	If Unsatisfactory
Check T2, C66, R70, R5 and other associated components.	Check vertical integrator network. Check video IF alignment for overloading.

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Substitute V14. Check C71, C74, R87, R3, R88 and other associated components.

HORIZONTAL BENDING

Check by substitution V7, V11, V12 and V14. Check horizontal AFC network and other associated components.

VIDEO

LOSS OF VIDEO

Substitute V6. Check R43, R37, L16, R35 and other components associated with V6.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A19. Check video IF alignment.

POOR CONTRAST

Substitute V6. Check video detector crystal, check contrast control, C44, C43, R36, R38 and other associated components.

NEGATIVE PICTURE

Substitute V6. Check video crystal detector network. Check picture tube and other associated components.

SMEAR

Substitute V6. Check L13, L14, L17, C44, R38 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5 and V6 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9 and V10. Check stages V9 and V10 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check components associated with the audio IF stage for failure or change of value.	Check C58, C60, R55, R57, C57, speaker, T9 and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A18 for minimum buzz. If still unsatisfactory check C8 and audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak Or No Sound".

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control, M1 and T1. If filaments light, check by substitution V18 and V19. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Check by substitution V18 and V19. Check B+ filter and decoupling network.

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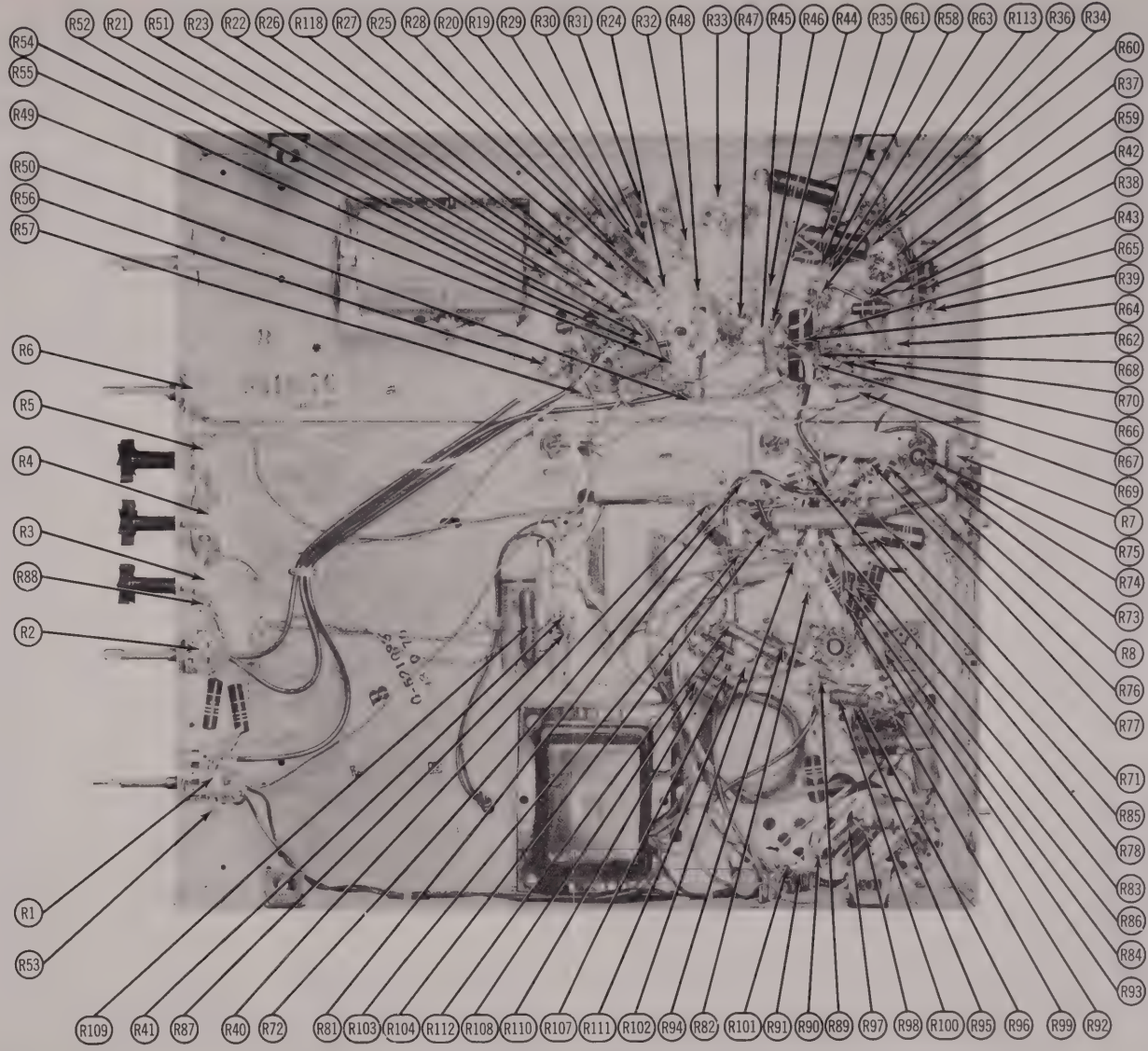

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PRODUCTION CHANGES

The following tabulation furnished complete details on changes which occurred during receiver production. The receivers incorporating these changes are identified by coding stamped on rear surface of chassis. The coding consists of one or more letters following the word SERIES, as SERIES "B", SERIES "AC", etc, and corresponds to similarly lettered changes shown below. Chassis incorporate only that change, indicated by letter designation, i.e., chassis stamped "SERIES BE" does not include changes "A" or "C" or "D".

CHANGES FOR MODELS 24C-9360A, 24C-9360AB, 27C-9350A AND 27C-9350AB

SERIES "A"

C97 which was formerly connected to the junction of A13 and A14 was removed and reconnected between A14 and grid (pin 1) of V3. When this change was made the value was changed from 470MMF to 680MMF, and the complete IF strip was changed from part #521816 to part #522088. This change is shown in the alternate IF strip schematic on page 2.

SERIES "B"

R58 was disconnected from the plate (pin 7) of V6 and reconnected to the junction of R37 and R43. This change was made to improve sync stability under high noise and/or weak signal conditions.

R112, connected between the 300 volt source and the 270 volt source, was changed from 400Ω to 200Ω. This change was made to insure adequate width under low line voltage conditions.

R66, located in the plate circuit of V12A was changed from 4700Ω, ½ watt, to 4700Ω, 1 watt. This change was made to provide a greater margin of safety for R66.

SERIES "C"

The fuse (M2) was changed from ½ amp. to 1/4 amp., Slo/Blo. This change was made to protect R66 in the event of high current drain in the horizontal output circuit.

SERIES "D"

R87 was changed from 22KΩ to 68KΩ and R88 was changed from 68KΩ to 120KΩ . These changes were made to improve the range of the horizontal hold control. NOTE: These changes should not be attempted unless the letter "B" is included in the series designation on the rear of the chassis.

SERIES "E"

R113 was changed from 100KΩ to 18KΩ, 2 watt. This change was made to protect the filament winding of the power transformer (T1) in the event the damper tube (V16) develops a cathode to filament short.

SERIES "F"

The 6800Ω resistor (R117) was added in parallel with peaking coil (L13) in the grid circuit of V6. NOTE: This resistor is not included in chassis without the letter "F" in the chassis series designation.

L14, located in the grid circuit of V6, was changed from part #520985 to part #509341.

L16, located in the plate circuit of V6, was changed from part #520689 to part #520984. R26, connected in parallel with L16 was changed from 12KΩ to 15KΩ.

L17, located in the plate circuit of V6 was changed from part #509342 to part #509340.

CHANGES FOR MODELS 24C-9370A, 24C-9370AB, 27C-9310A AND 27C-9310AB

SERIES "A"

R58 was disconnected from the plate (pin 7) of V6 and reconnected to the junction of R37 and R43. This change was made to improve sync stability under high noise and/or weak signal condition.

R112, connected between the 300 volt source and the 270 volt source, was changed from 400Ω to 200Ω. This change was made to insure adequate width under low line voltage conditions.

R66. located in the plate circuit of V12A was changed from 4700Ω, ½ watt, to 4700Ω, 1 watt. This change was made to provide a greater margin of safety for R66.

SERIES "B"

The fuse (M2) was changed from ½ amp. to 1/4 amp., Slo/Blo. This change was made to protect R66 in the event of the high current drain in the horizontal output circuit.

SERIES "C"

R87 was changed from 22KΩ to 68KΩ and R88 was changed from 68KΩ to 120KΩ. These changes were made to improve the range of the horizontal hold control. NOTE : These changes should not be attempted unless the letter "A" is included in the series designation on the rear of the chassis.

SERIES "D"

R113 was changed from 100KΩ to 18KΩ, 2 watt. This change was made to protect the filament winding of the power transformer (T1) in the event the damper tube (V16) develops a cathode to filament short.

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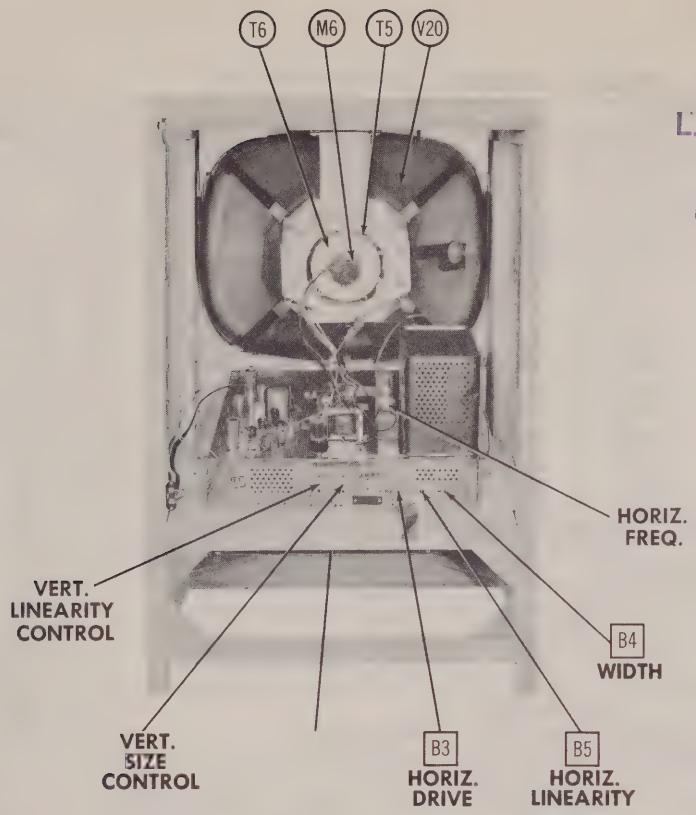
3924 MEADE ST.
DENVER, COLORADO



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

(1) Set the horizontal frequency slug (B1) and the stabilizing coil slug (B2) to their fully counter clockwise positions.

(2) Short together terminals "C" and "D" of the horizontal oscillator coil L20.

(3) Turn the horizontal drive trimmer (B3) one half turn from its fully clockwise position. Set the horizontal hold control to its fully clockwise position.

(4) Adjust B1 until picture just locks in horizontally.

(5) Remove short from terminals "C" and "D" of L20. If picture loses sync with short removed adjust B2 clockwise until picture falls into sync.

(6) Connect the vertical input lead of an oscilloscope to terminal "C" of L20. Adjust the stabilizing coil slug (B2) clockwise until the broad and narrow peaks are of equal amplitude as shown in Fig. 13. While adjusting B2 keep the picture in sync by turning the horizontal hold control counter clockwise. Disconnect scope from receiver.

(7) Turn horizontal hold control counter clockwise and adjust B1 so that picture remains in sync when switching off channel and back again. Then adjust B1 slowly counter clockwise until picture is just ready to lose sync.

(8) The horizontal holding action should now be as follows:

(a) With horizontal hold control set fully counter clockwise switch off channel and back again. Picture should be just ready to pull into sync.

(b) With horizontal hold control set fully clockwise picture may lose sync when switching off channel and back again.

(c) With horizontal hold control set at or near its mid-range position, picture should remain in sync when switching off channel and back again.

Adjust the horizontal drive trimmer (B3) counter clockwise as far as possible without the presence of vertical white lines or compression near the center of the tube.

Adjust the width coil slug (B4) for a picture slightly wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity coil slug (B5) for a picture that is symmetrical from left to right.

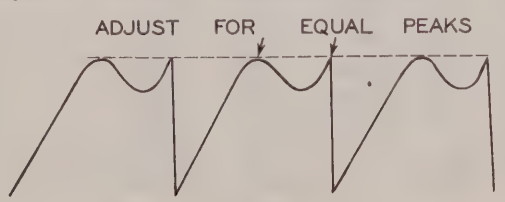


FIG. 13

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3924 MEADE

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: Stewart-Warner PART No.	STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	6BQ7A	6BQ7A	9AJ	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	12BY7	12BY7	9BF	
V7	AGC Keying	6AU6	6AU6	7BK	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector-AF Amp.- AGC Clamper	6T8	6T8	9E	
V10	Audio Output	6AQ5	6AQ5	9BZ	
V11	Sync Separator	6BE6	6BE6	7CN	
V12	Sync Amplifier-Vert. Oscillator	12AU7	12AU7	9A	
V13	Vert. Output	6AU5GT	6AU5GT	8CK	
V14	Horiz. AFC-Horiz.Oscillator	6SN7GT	6SN7GT	8BD	
V15	Horiz.Output	6CD6G	6CD6G	7BT	
V16	Damper	6AX4GT	6AX4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	
V19	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Stewart-Warner PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V20	24CP4A	24CP4A	24CP4A	24CP4A		12N	
	24CP4	24CP4	24CP4	24CP4		12N	Note 5
	27EP4	27EP4				12D	Note 5
	27NP4					12N	Note 5
	27RP4	27RP4	27RP4			12N	Note 5

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	VOLT	Stewart-Warner PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	508072	AFH3-44		C035		FP377	TVL-3787	
B	▲40	450								
C	■40	450								
C2	40	300	169095	PRS450/5D		BR4035		TC78	TVA-1611	
C3A	▬80	250	509002	AFH3-142		C109		FP375	TVL-3764	
B	▲100	50								
C4	8	300	507386	PRS350/8		BR835		TC61	TVA-1603	
C5	4	450	504719	PRS450/4		BR445		TC70	TVA-1702	
C6	10	600	508980	PRS600/10		BRHV610		TC92	R1222	
C7	4	150	520921	PRS150/4		BR415		TC40	TVA-1402	
C8	10	150	505174	PRS150/12		BR1015		TC42	TVA-1406	
C9	3-8				829-10					
C10	1000			EF-001	MFT-1000				503C-D1	
C11	3			SI3NP0	TCZ-3	Z007	NP0K-030	ZT-5533	5TCCB-V33	
C12	1000			EF-001	MFT-1000				503C-D1	
C13	3-5				829-3		3125-01-0R5	CT585A		
C14	1.5			SI1.5NP0	TCZ-1.5	Z004	NP0K-1R5	ZT-5515	5TCCB-V15	
C15	47			BPD-000047	D6-470	G033	801-470	UC-5447	5GA-Q47	
C16	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C17	1000			EF-001	MFT-1000				503C-D1	
C18	47			BPD-000047	D6-470	G033	801-470	UC-5447	5GA-Q47	
C19	.5-3				829-3		3125-01-0R5	CT585A		
C20	10			SI10NP0	TCZ-10	Z018	NP0K-100	ZT-541	5TCC-Q1	
C21	5									
C22	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C23	6.8			SI6.8NP0	TCZ-6.8	Z013	NP0K-6R8	ZT-5568	5TCCB-V68	
C24	1000			EF-001	MFT-1000				503C-D1	
C25	1000			EF-001	MFT-1000				503C-D1	
C26	120			BPD-00012	D6-121	G044		UC-5312	5GA-T12	
C27	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C28	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C29	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C30	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 1
C31	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 2
C32	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 3
C33	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 1
C34	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 2
C35	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 3
C36	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 1
C37	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 1
C38	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 4
C39	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 1
C40	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	Note 1
C41	5		513432	SI5NP0	TCZ-4.7	TZ07	NP0K-050	ZT-555	5TCCB-V47	
C42	.22	200	512238	P288-22		CUB2P22		PT4022	2TM-P22	
C43	47		513438	SI47NP0	TCZ-47	TZ47	NP0K-470	ZT-5447	5TCC-Q47	
C44	.1	200	512316	P288-1	DF-104	CUB2P1		PT401	2TM-P1	
C45	.047	200	512235	P288-047	DF-503	CUB2S47		PT4147	2TM-S47	
C46	1000	1000	513032	RVD15-00022		VT22	IR5KV-221	MCK322	10GA-T22	
C47	.47	200	512239	P288-47		CUB2P47		PT4047	2TM-P47	
C48	2.2		513001	SI2.2NP0	TCZ-2.2	TZ05	NP0K-2R2		5TCCB-V22	
C49	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C50	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C51	1500		513010	SI1500	D6-152	TP54	GP2L-152	UC-5215	5HK-D15	
C52	1500		513010	SI1500	D6-152	TP54	GP2L-152	UC-5215	5HK-D15	
C53	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C54	.047	200	512235	P288-047	DF-503	CUB2S47		PT4147	4TM-S47	
C55	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C56	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C57	270		513006	SI270	D6-271	TP41	GP2K-271	UC-5327	5GA-T27	
C58	.01	400	512205	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C59	.01	400	512205	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C60	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C61	5000		513013	BPD-005	DD-502	K080	81L-005	DC-525	5HK-D5	
C62	.047	200	512235	P288-047	DF-503	CUB2S47		PT4147	2TM-S47	
C63	.47	200	512239	P288-47		CUB2P47		PT4047	2TM-P47	

CAPACITORS (cont)

ITEM No.	RATING: CAP.	VOLT	Stewart-Warner PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C64	.01	400	512205	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C65A	.01							DC-511		
B	.002		508062	†BPD-01	†DD-103	†K082	†81L-01	DC-522	†5HK-S1	
C	.005			PA-110	PC-100	115TM1	1405-01	DC-525	101C1	
D	.005							DC-525		
C66	4700	1000	513033							
C67	.1	600	512218	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C68	.1	600	512218	P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C69	.047	400	512237	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C70	3300	500	512520							
C71	.02		513018	SI82	D6-820	G040	GP1K-820		5GA-Q82	
C72	.0022	400	512232	P688-0022	D6-222	CUB6D22	GP2-333-222	PR6222	6TM-D22	
C73	47	1000	513030	HVD15-00047		VQ47	1R5KV-470	MC1447	10GA-Q47	
C74	.047	400	512236	P488-047	DF-503	CUB4S47		PT4147	4TM-S47	
C75	.047	200	512235	P288-047	DF-503	CUB2S47		PT4147	2TM-S47	
C76	.022	400	512233	P488-022	DF-203	CUB4S22	817-02	PT4122	4TM-S22	
C77	.47	200	512239	P288-47		CUB2P47		PT4047	2TM-P47	
C78	.00		518A.7				N330-333-201			
C79	.01	500	512311							
C80	870	500	512547				IR5T82			
C81	1000		513000	SI1000	D6-102	TP52	GP2L-102	UC-531	5HK-D1	
C82	.22	400	512223	P488-22		CUB4P22		PT4022	4TM-P22	
C83	.01	200	512204	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C84	.047	400	512236	P488-047		CUB4S47		PT4147	4TM-S47	
C85	.047	400	512236	P488-047		CUB4S47		PT4147	4TM-S47	
C86	500	30000	521737		TV8-503	MMU30T5				
C87	.22	400	512223	P488-22		CUB4P22		PT4022	4TM-P22	
C88	100	3000	513043	HVD30-0001			3KV-101		30GA-T1	
C89	150	2000	513042	HVD30-00015					20GA-T15	
C90	150	2000	513042	HVD30-00015					20GA-T15	
C91	8.2		513455			Z016				Note 5
C92	470		513037	SI470	D6-471	TP46	GP2K-471	UC-5347	5GA-T47	Note 5
C93	1500		513038	BPD-0015	DD-152	K071	801-0015	DC-5215	5HK-D15	Note 5
C94	12		513448			Z008				Note 5
C95	5		513449							Note 5
C96	4		513454	SI4NP0	TCZ-4	Z009	NP0K-040			Note 5
C97	680		513044	SI680	D6-681	TP50	GP2K-681	UC-5368	5GA-T68	Note 5

Note 1. Models 24C-9360A, 24C-9360AB, 27C-9350A and 27C-9350AB use 1500MMF in this application.
Note 2. Not used in Models 24C-9360A, 24C-9360AB, 27C-9350A, 27C-9350AB.
Note 3. Models 24C-9360A, 24C-9360AB, 27C-9350A and 27C-9350AB use 470MMF in this application.
Note 4. Models 24C-9360A, 24C-9350A and 27C-9350AB use 680MMF in this application.
Note 5. Not used in Models 24C-9370A, 24C-9370AB, 27C-9310A and 27C-9310AB.
♦ Items C65A, C65B, C65C, C65D, R69A, R69B, R69C are combined in one unit.
† To replace Mfgr's original unit, install 10000MMF unit in series with C-R unit input lead.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	Stewart-Warner PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100KΩ	½	521060	*QJ-471	RTV-426		UF15L	Brightness -Panel
B	1Meg	½					UR16T25 †	Volume - tapped ⑭200KΩ-Rear
C	Switch						US-26	Attach to R1B
R2A	500KΩ	½	520746	QU-133	A47-500K-S	AB-59	U-50	Tone
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	Not Req.	Attach to R2A
R3A	50KΩ	½	521059	QU-123	A47-50K-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	Not Req.	Attach to R3A
R4A	10KΩ	4	521727	4WK-10K	A10-10K	SVP-995	M10MPK	Focus-wire wound
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	Not Req.	Attach to R4A
R5A	1Meg	½	521058	QU-137	A47-1Meg-S	AB-89	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	Not Req.	Attach to R5A
R6A	500Ω	½	521057	QU-103	A47-500-S	AB-4	R500L	Vert. Amplitude
B	Shaft		Not Req.	Not Req.	KSB-3	AK-4	D8-36	Attach to R6A
R7A	5000Ω	½	520945	QU7-14	A47-5000-S	AB-12	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	2.5Meg	½	520944	QU-239	A47-2.5Meg-S	AB-83	SU-565	Vert. Size
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R8A

* CONCENTRIKIT EQUIVALENT KIT K-2 BASE ELEMENTS & SHAFTS B11-128 & P1-123 (Panel)
B12-127X & A16 (Rear) & SWITCH T8-1.
† UNIVERSAL REPLACEMENT (Mallory exact duplicate part #UE1240S).

RESISTORS

ITEM No.	RATING: OHMS	WATT	Stewart-Warner PART No.	IRC PART No.	NOTES
R9	15KΩ	½		BTS-15K	
R10	47KΩ	½		BTS-47K	
R11	100KΩ 5%	½		BTS-100K 5%	
R12	180KΩ	½		BTS-180K	
R13	100KΩ	½		BTS-100K	
R14	150Ω	½		BTS-150	
R15	10KΩ	½		BTS-10K	
R16	220KΩ	½		BTS-220K	
R17	10KΩ	½		BTS-10K	
R18	15KΩ	½		BTS-15K	
R19	4700Ω	2	510348	BTB-4700	
R20	100Ω	½	510118	BTS-100	
R21	56KΩ	½	510154	BTS-10K	Note 1
R22	68Ω	½	510116	BTS-68	Note 2
R23	470Ω	½	510130	BTS-470	Note 6
R24	100KΩ	½	510172	BTS-100K	
R25	120KΩ	½	510174	BTS-120K	Note 6
R26	6800Ω	½	510151	BTS-6800	Note 6
R27	560Ω	½	510150	BTS-560	Note 6
R28	47Ω	½	510118	BTS-47	
R29	100Ω	½	510118	BTS-100	Note 6
R30	560Ω	½	510150	BTS-560	Note 6
R31	100Ω	½	510118	BTS-100	Note 4
R32	100Ω	½	510118	BTS-100	Note 3
R33	560Ω	½	510150	BTS-560	
R34	47KΩ	½	510166	BTS-47K	
R35	820Ω	½	510153	BTS-8200	
R36	12KΩ 5%	½	510723	BTS-12K 5%	Note 5
R37	2200Ω	½	510242		
R38	330KΩ	½	510181	BTS-330K	
R39	560KΩ	½	510186	BTS-560K	
R40	100KΩ	½	510172	BTS-100K	
R41	100KΩ	½	510172	BTS-100K	
R42	33KΩ	½	510163	BTS-33K	
R43	1800Ω	½	510141	BTS-1800	
R44	100KΩ	½	510172	BTS-100K	
R45	100KΩ	½	510172	BTS-100K	
R46	3.3Meg	½	510701	BTS-3.3Meg	
R47	82Ω	½	510117	BTS-82	
R48	4700Ω	½	510249	BTA-4700	
R49	220Ω	½	510124	BTS-220	
R50	18KΩ	½	510159	BTS-18K	
R51	22KΩ	½	510160	BTS-22K	
R52	220Ω	½	510124	BTS-220	
R53	68KΩ	½	510169	BTS-68K	
R54	10Meg	½	510197	BTS-10Meg	
R55	470KΩ	½	510184	BTS-470K	
R56	560KΩ	½	510778	BTS-560K	
R57	820KΩ	½	510747	BTS-820K	
R58	18KΩ	½	510159	BTS-18K	
R59	1.5Meg	½	510752	BTS-1.5Meg	
R60	2.2Meg	½	510193	BTS-2.2Meg	
R61	82KΩ	½	510171	BTS-82K	
R62	22KΩ	½	510160	BTS-22K	
R63	220KΩ	½	510178	BTS-220K	
R64	10Meg	½	510197	BTS-10Meg	
R65	22KΩ	½	510160	BTS-22K	
R66	4700Ω	½	510248	BTA-4700	
R67	6800Ω	½	510251	BTA-6800	
R68	18KΩ	½	510159	BTS-18K	
R68A	22KΩ	½		BTS-22K	
B	8200Ω	½	♦508062	BTS-8200	
C	8200Ω	½		BTS-8200	
R70	1.2Meg 5%	½	510777	BTS-1.2Meg 5%	
R71	2.7Meg 5%	½	510772	BTS-2.7Meg 5%	

RESISTORS (cont)

ITEM No.	RATING: OHMS	WATT	Stewart-Warner PART No.	IRC PART No.	NOTES
R73	2.2Meg	½	510193	BTS-2.2Meg	
R101	10KΩ	1	510126	BTS-270	
R102	330KΩ	½	510181	BTS-330K	
R103	33KΩ	½	510163	BTS-33K	
R104	100KΩ	½	510172	BTS-100K	
R105	4700Ω	2	510248	BTS-4700	
R106	1Meg	½	510390	BTA-1Meg	
R107	100Ω	5	510781	1 3/4A-100	
R108	100Ω	5	510781	1 3/4A-100	
R109	600Ω	10	510741	1 3/4A-600	
R110	1500Ω	½	510139	BTS-1500	
R111	15KΩ	½	510157	BTS-15K	
R112	200Ω	10	510782	1 3/4A-200	
R113	100KΩ	½	510359	BTS-100K	
R114	150KΩ	½	510175	BTS-150K	
R115	24KΩ	½		BTS-24K	Note 7
R116	8200Ω	½		BTS-8200	Note 7
R117	6800Ω	½		BTS-6800	Note 7
R118	3900Ω	½	510139	BTS-3900	Note 6
R119	10Ω	½		BTS-10	Note 7
R120	470Ω	½		BTS-470	Note 7
R121	6800Ω	½	510151	BTS-6800	Note 7
R122	120KΩ	½	510174	BTS-120K	Note 7
R123	1200Ω	½	510138	BTS-1200	Note 7
R124	6800Ω	½	510151	BTS-6800	Note 7

Note 1. Models 24C-9360A, 24C-9360AB, 27C-9350A, 27C-9350AB may use a 470 resistor in this application.
Note 2. Models 24C-9360A, 24C-9360AB, 27C-9350A, 27C-9350AB may use a 470Ω resistor in this application.
Note 3. Models 24C-9360A, 24C-9360AB, 27C-9350A, 27C9350AB may use a 470Ω resistor in this application.
Note 4. Models 24C-9360A, 24C-9360AB, 27C-9350A, 27C-9350AB may use a 82Ω resistor in this application.
Note 5. Models 24C-9360A, 24C-9360AB, 27C-9350A, 27C-9350AB may use a 15KΩ resistor in this application.
Note 6. Used in Models 24C-9370A, 24C-9370AB, 27C-9310A and 27C-9310AB only.
Note 7. Used in Models 24C-9360A, 24C-9360AB, 27C-9350A, and 27C-9350AB only.
♦ Items R69A, R69B, R69C, C65A, C65B, C65C and C65D are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI	SEC 1	SEC 2	Stewart-Warner PART No	Stancor PART No	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @2.17A	630VCT 5VAC .230ADC	SEC 2 @6A	521725						
	SEC 3	SEC. 4	SEC 5							
	6.3VAC @3A	12.6VCT 4.2A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	Stewart-Warner PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No.
T2	Vert.Osc. Trans.	520980	A-8125	A-3003	A-97X	209T1 ①	B6702	24A87①
T3	Horiz.Output Trans.	521735 ②			D-50* ③	235T1 * ③		FLY-18③
T4	Vert.Output Trans.	530975 ④	A-8115 ⑤ ⑮	A-3035 ⑤ ⑮	A-10770 ⑤		Z18000 ③ ⑤	24S88 ③ ⑤
T5A	Yoke (90°) Horiz. (12.MH)	115423 ⑥		MDF-90 ⑦	Y-50-1 ⑦	219D1 ⑦		Y-14 ⑦
B	Vert. (47MH)							
T6	Focus Coil	162326 ⑧						
T7	Horiz.Lin. Coil (1.3-10MH)	520911 ⑨		MWC-6 ⑩	WC-12 ⑪	213R1		WC-17
T8	Width Coil (3.8-34MH) with AFC Sec. (3.4-1MH)	508667 ⑫		MWC-1 ⑬	WC-11 ⑬	214R1 ⑮	RF800	WC-20 14

① Drill one new mounting hole.
② Includes resistor R106.
③ Drill new mounting holes.
④ Includes terminal strip and connectors for yoke leads. (part #521095).
⑤ Connect as auto trans.
⑥ Includes leads, connectors, capacitor C90 and resistor R105.
⑦ Use original yoke network.
⑧ Includes cable and plug.
⑨ Includes core and mounting clip.
⑩ Enlarge mounting hole.
⑪ Connect to coded blue and green terminals.
⑫ Includes core and mounting clip (part #508784).
⑬ Connect red and blue terminals to terminals 3 and 1 of horizontal output transformers, orange and black terminals to AFC network. If the picture is out of phase, reverse orange and black terminals.
⑭ Connect terminals 3 and 4 of width coil to terminals 3 and 1 of horizontal output transformers, terminals 1 and 2 to AFC network. If the picture is out of phase, reverse terminals 1 and 2.
⑮ Connect terminals "C" and "E" of width coil to terminals 3 and 1 of horizontal output transformers. Terminals "A" and "B" to AFC network. If the picture is out of phase, reverse terminals "A" and "B".

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Stancor Replacement Connections	Merit Replacement Connections	Triad Replacement Connections	RCA Replacement Connections	Halldorson Replacement Connections	Thordarson Replacement Connections
	10			Hi-Volt Rect Plate Lead	Hi-Volt Rect Plate Lead		Hi-Volt Rect Plate Lead
	9			9	9		9
	7			7	7		7
	5			5	5		5
	T (NC)			NC	NC		NC
	3			3	3		3
	1			1	1		1
Connect Width Coil Across →	3 & 1			3 & 1	3 & 1		3 & 1

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Stewart-Warner PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T9	4.3KΩ	3.3Ω	509376	A-3877	A-2930	S-3X	Z1001	22S46	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Stewart-Warner PART No.	JENSEN PART No.	QUAM PART No.	
SP1	6" x 9"	PM	3.3Ω	508174	ST-810 Mod. P69-V	69A2	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Stewart-Warner PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coils	0ΩCT	0Ω					
L2	Fil. Choke	0Ω						
L3	Neutr. Coil	0Ω						
L4	RF Mixer Grid & Osc. Coils	0Ω						
L5	Fil. Choke	0Ω						
L6	RF Choke	0Ω						
L7	1st. Video IF	1Ω						
L8	RF Choke	1.3Ω						
L9	2nd. Video IF	.3Ω	.5Ω	520977 *	17-1063	TV-116	6249	
L10	3rd. Video IF	.3Ω	.5Ω	520977 *	17-1064	TV-116	6250	
L11	4th. Video IF	.4Ω	.6Ω	520979 *	17-1064	TV-116	6250	
L12	Fil. Choke	0Ω		507584	19-3001	TV-189	6175	.6 Microhenry, not used in all models
L13	Series Peaking Coil	8.5Ω		520620	19-3180	TV-184	6180	180 Microhenries
L14	Shunt Peaking Coil	25Ω		520985	19-3660		4650	650 Microhenries
L15	4.5MC Trap	1.7Ω		509603 †	20-1004	TV-151	1470	S-W part number includes C43
L16	Series Peaking Coil	9.5Ω		520689	19-3180	TV-184	6180	180 Microhenries
L17	Shunt Peaking Coil	14Ω		509342	19-1923	TV-188	4648	405 Microhenries
L18	Sound IF	1Ω		509378	16-3445 ♦	TV-113 ♦	1470-A	
L19	Ratio Det.	4Ω	.8ΩCT	509706	17-3493	TV-115 ■	1498	Tertiary winding -.5Ω
L20	Horiz. Osc.	80Ω		520943	20-1402 ▲	TV-162 ▲	6183 ▲	Includes slug, slug part number 521064, primary tapped ⓐ 60Ω, waveform winding 44Ω

* Less slug, slug part #507357.
† Includes slug, slug part #507357.
♦ Use one winding only.
■ Use adaptor plate
▲ Reverse coil mounting in can.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	Stewart-Warner PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L21	.270ADC	73Ω	2.9 Hy.	508341	C-2326 ①	C-2991①	C-17X	C5030	26C44

FUSES

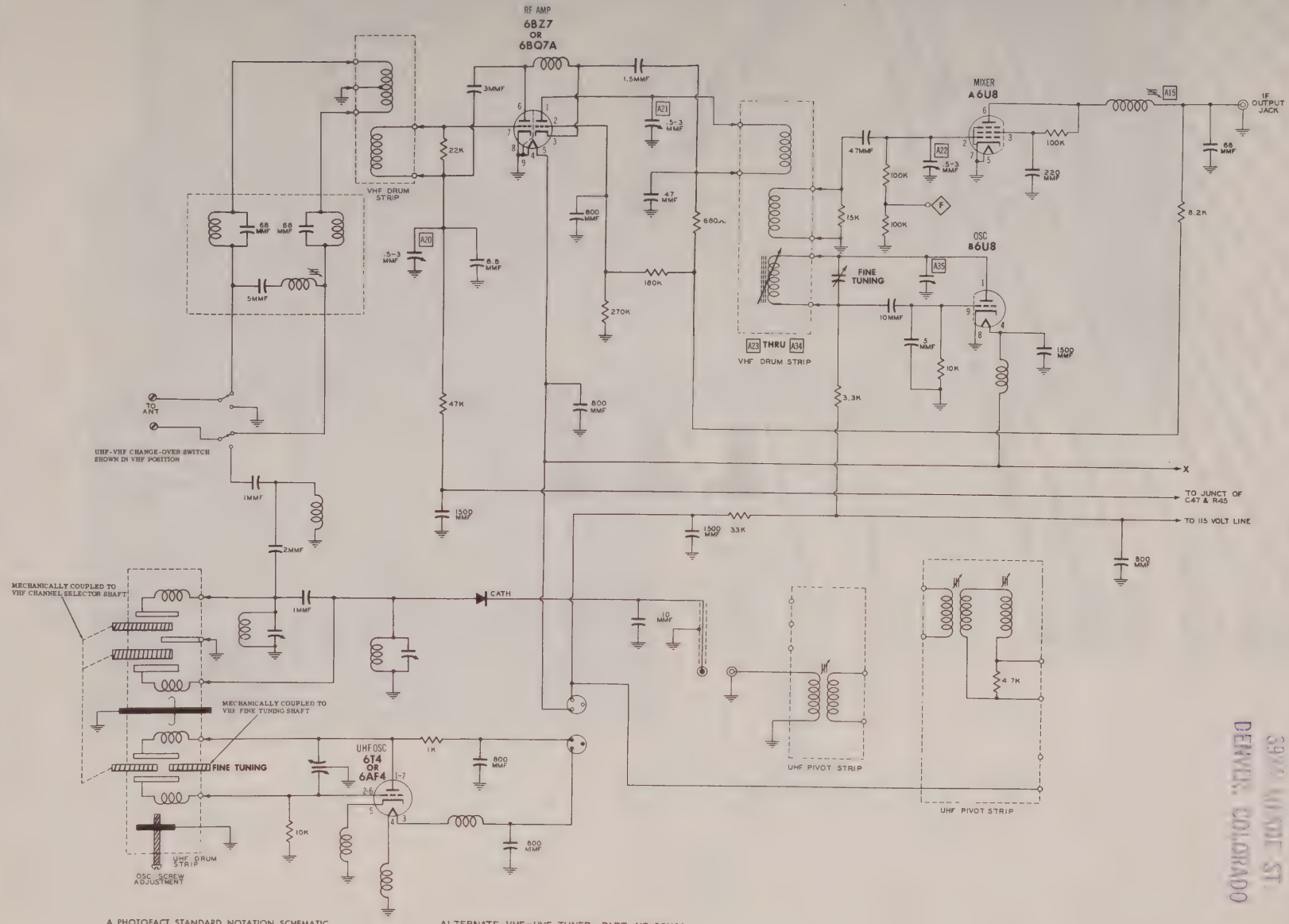
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Stewart-Warner PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	4A 125V	521803	520989	313004 (3AG S/B-4A)	357002	MDX4	4408
M2	3AG S/B	1/4A 250V	522320	520989	313.250 (3AG S/B-1/4A)	357002	MDL-1/4	4408

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Stewart-Warner PART No.	SYLVANIA PART No.	FEDERAL PART No.	
M3	1N64	509386	1N132	1N64A	Video Detector

MISCELLANEOUS

ITEM No.	PART NAME	Stewart-Warner PART No.	NOTES
M4	Dial light	118921	# 47 bayonet
M5A	Tuner	521068	VHF only
B	Tuner	521150	All channel
M6	Ion trap	521183	
B3	Trimmer cap	508071	Horiz. drive 10-160MMF
	IF Strip	522088	Printed circuit complete with tubes and parts (See Prod. Chgs. for series designation on page 14)
	IF Strip	521816	Printed circuit complete with tubes and parts (See Prod. Chgs. for series designation on page 14)
	Cabinet	521962	Blonde 24" models
	Cabinet	521861	Mahogany 24" models
	Cabinet	521792	Blonde 27" models
	Cabinet	521791	Mahogany 27" models
	Knob	521174	Channel selector-maroon (VHF models)
	Knob	509019	Brightness- maroon
	Knob	521134	Star-3 used
	Knob	520831	Volume-maroon
	Knob	520740-B	Tone & power booster-maroon
	Knob	509017	Fine tuning -24C-9370 & 27C-9310
	Knob	521983	Brightness-tan
	Knob	521911	Fine tuning-24C-9360 & 27C-9350
	Knob	521982	Volume-tan
	Knob	520740-D	Tone & power booster-tan
	Knob	521980	UHF channel selector-tan
	Knob	521981	VHF channel selector-tan
	Safety Glass	521941	24" Models
	Safety Glass	520867	27" Models



PROPERTY OF
L. F. BLANKENSHIP
3970 MIDDLE ST.
DENVER, COLORADO

ALTERNATE TUNER SCHEMATIC

STEWART-WARNER MODELS 24C-9360A, AB, 24C-9370A, AB, 27C-9310A, AB, 27C-9350A, AB

TROUBLE SHOOTING AIDS (cont)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V14, V15, V16 and V17. Check M2 fuse. Check waveform W16.

If Satisfactory	If Unsatisfactory
Check T3, T5A, C85, C84, C6, C82, R100, R99 and other associated components.	Check C81, C79, C78, L20, R94 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V15, V16, V18 and V19. Check T3, T5A, R100 and other associated components.

BLOOMING

Check by substitution V15, V16, V17, V18 and V19. Check R100, R99, C81 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss Of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak Or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V10. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

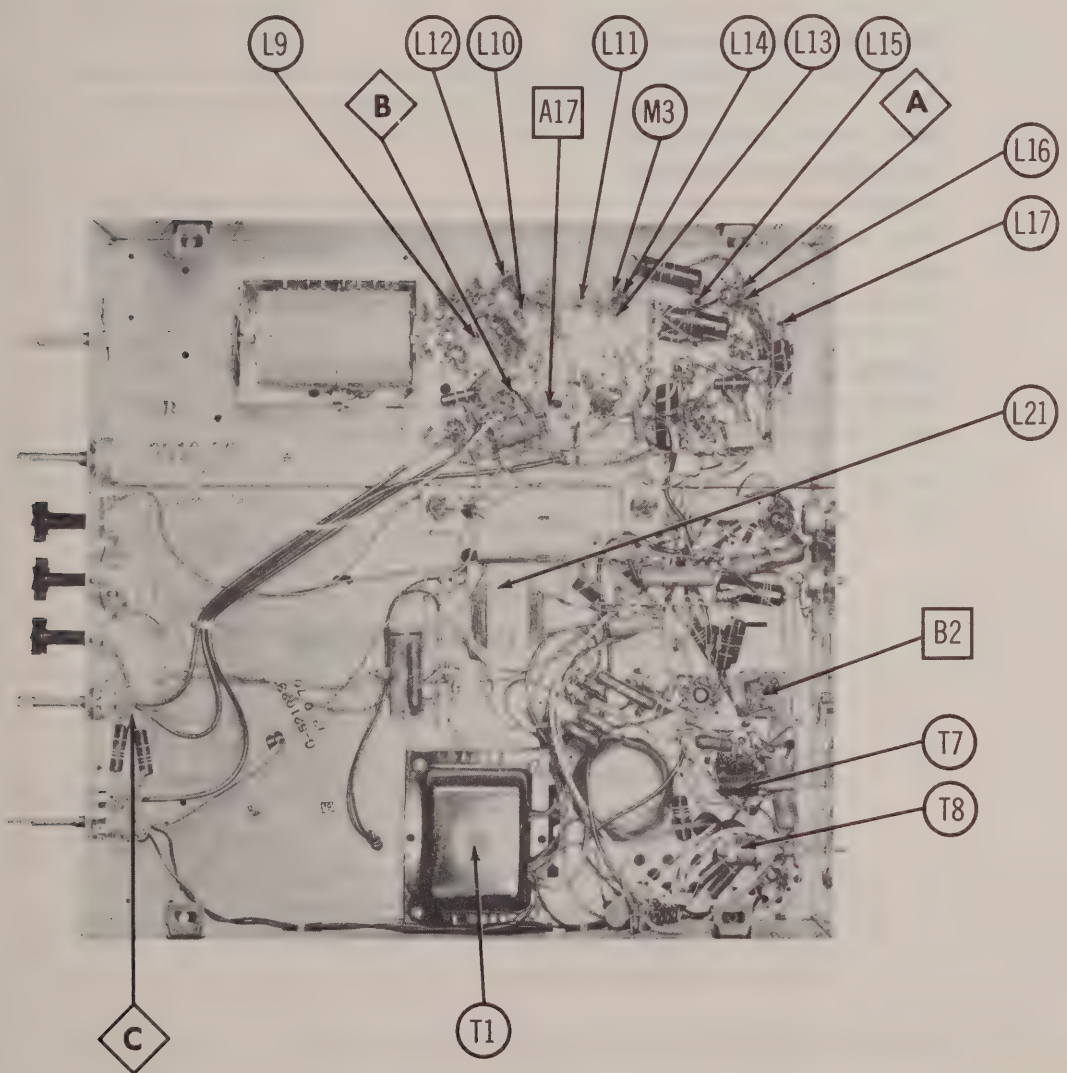
KEYSTONE EFFECT

Check T5, C88, C89 and other associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF Tuner Oscillator Circuit may be accomplished by removal of the Channel Selector and Fine Tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the Channel Selector shaft.

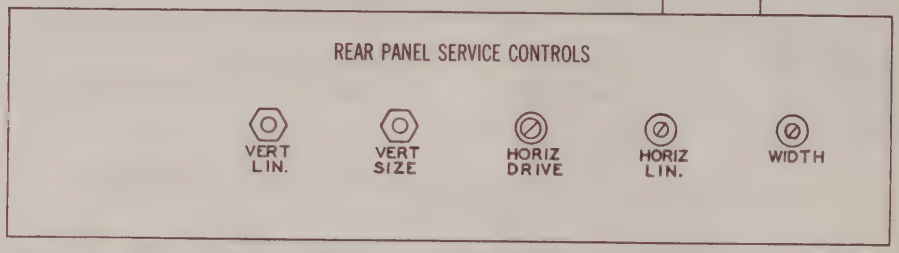
PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass remove 3 wood screws holding metal strip at the top of safety glass. Remove strip and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions.)

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the Horiz. Oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the Horiz. Hold Control at the center of its range and adjust the Horiz. Freq. slug (L20) until, picture synchronizes horizontally. (For location see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector Buzz, adjust the Ratio Detector Secondary (L19) located on top of chassis. (See tube placement chart.)

FUSES

Two fuses are used. One for Horiz. Sweep Circuit protection and one for L. V. power supply protection, (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering lever on the PM Focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 6 push on type control knobs from front panel.
2. Remove 7 wood screw and 1 metal screws. Remove rear cover.
3. Disconnect built-in antenna.
4. Remove 2 wood screws. Remove antenna bracket from rear of cabinet.
5. Disconnect speaker leads, CRT socket, yoke plug, HV-lead, and ground strap.
6. Remove 4 chassis bolts. Remove chassis.
7. Remove 4 speaker nuts. Remove speaker.

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TELECTRO-TAPE
MODEL A

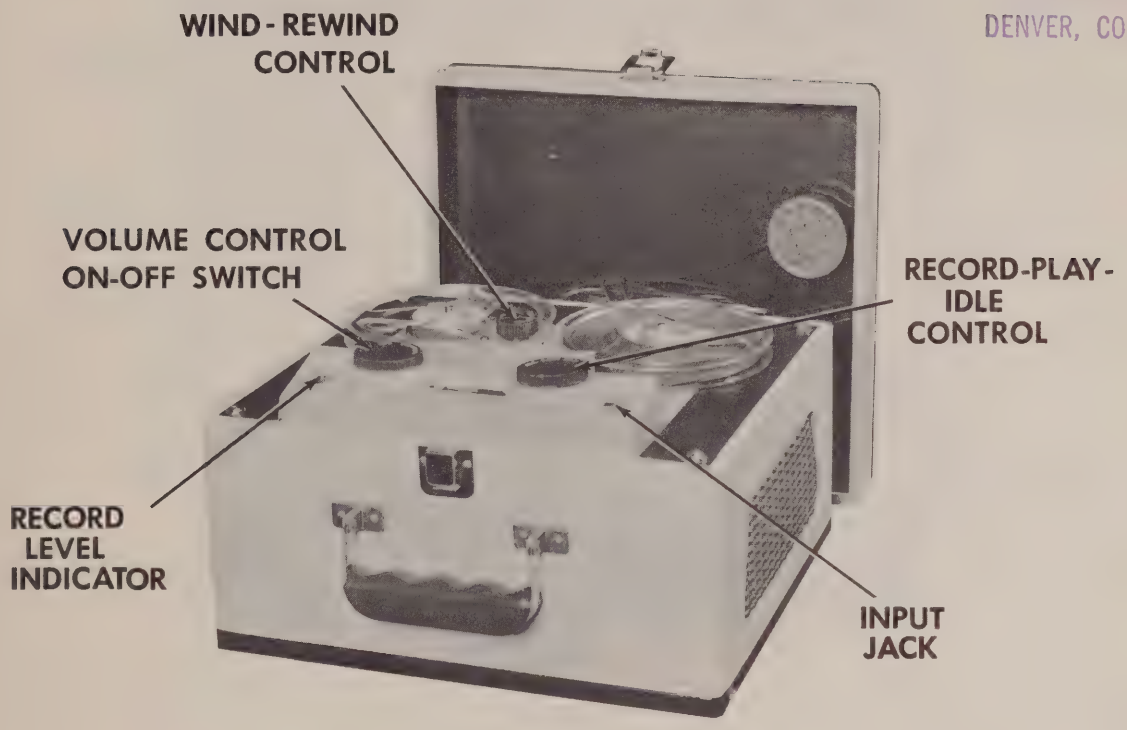

Figure 1

GENERAL INFORMATION

The Telectro-Tape Model A is designed to record and play back two tracks of material on standard width recording tape, which doubles the playing time of a 3" or 5" reel with no loss of frequency response or quality. Recordings can be made from a radio, television receiver or phonograph, in addition to those made directly from the microphone. A high speed wind and rewind lever is located in the center of the upper plate. The Telectro-Tape is supplied complete with microphone and 6 foot cord, one empty and one full reel of Type "A" tape, 6 foot power cord, and instruction booklet.

This recorder has a tape speed of 3 3/4" per second. Using both tracks, the total recording time for a 5" reel of tape is one hour.

The Model A is designed to operate on 60 cycle, 105-125 volts, AC supply only.

Manufactured by:

Telectrosonic Corporation
35-18 37th Street
Long Island City, N. Y.

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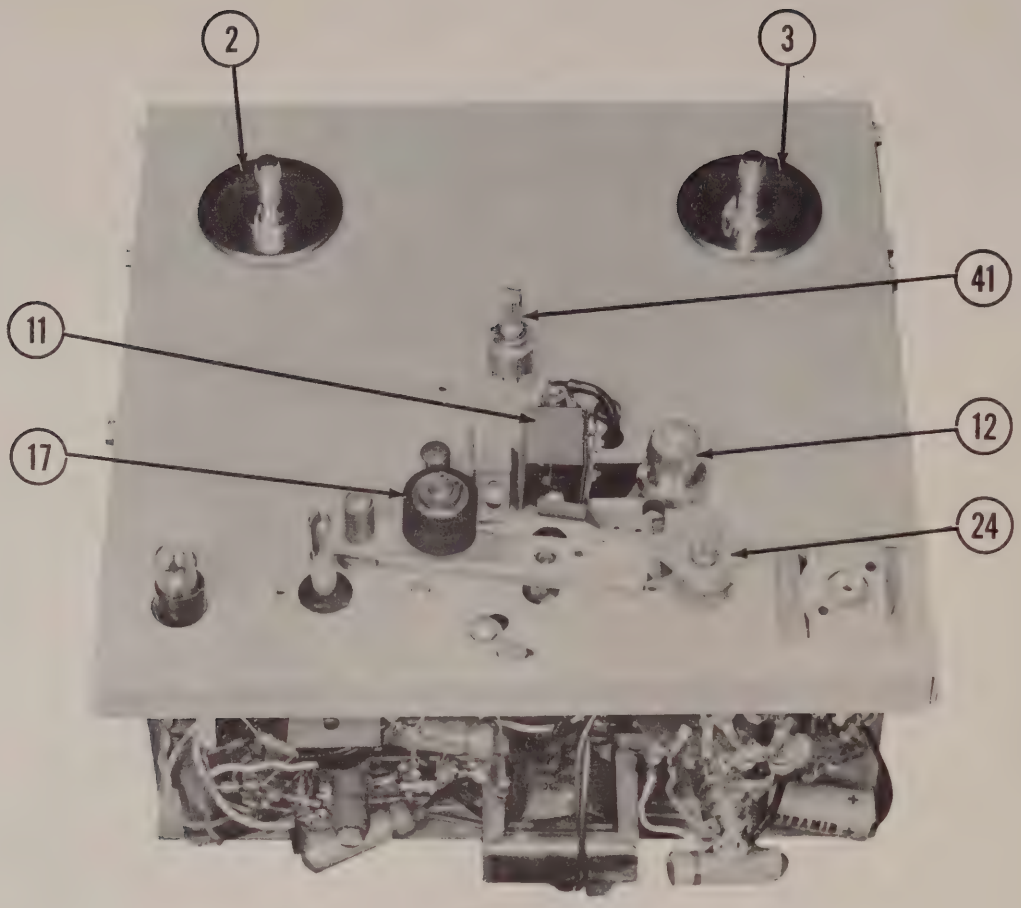

Figure 2

SPECIFICATIONS

Size-Portable Unit-
7" x 10" x 11 1/2".

Weight-
Approximately 14 lbs.

Case-
Airplane cloth luggage carrying case, two-tone.

Tape Speed-
3 3/4" per second.

Tracks-
Dual.

Reel Size-
5" maximum.

Tape Wind-
Type "A".

Track Selection-
Manual turnover.

Recording Time-
1 hour at 3 3/4" per second (1/2 hour each track).

Head Alignment Provision-
Yes.

Inputs-
Microphone, radio, television, and phonograph-panel jack.

Record Volume Indicator-
Neon type.

Tube Complement-
12AT6-Amplifier, 12AX7-AF Amplifier, -Bias Oscillator, 50C5-Audio Output.

OPERATING INSTRUCTIONS

Threading The Tape-

With the "Rec-Play-Idle" control in the "Idle" position, place an empty reel on the left hand (take-up) spindle. Place a full reel of tape on the right hand (supply) spindle so that the tape will lead off in a clockwise direction. Remove approximately twelve inches of tape from the supply reel for ease of threading the machine. Hold a section of tape straight with both hands and insert the tape into the tape slot. Insert the free end of the tape into one of the hub slots on the take-up reel, then wind the reel one or two times clockwise to secure the tape and to take up all slack.

NOTE: Extreme caution should be taken in the threading of the machine to avoid putting a twist in the tape. Also make certain the smooth (or plastic) side of the tape is facing the front of the recorder.

To Record-

Secure the line cord in the slot provided at the back of the case. Plug the line cord into a convenient

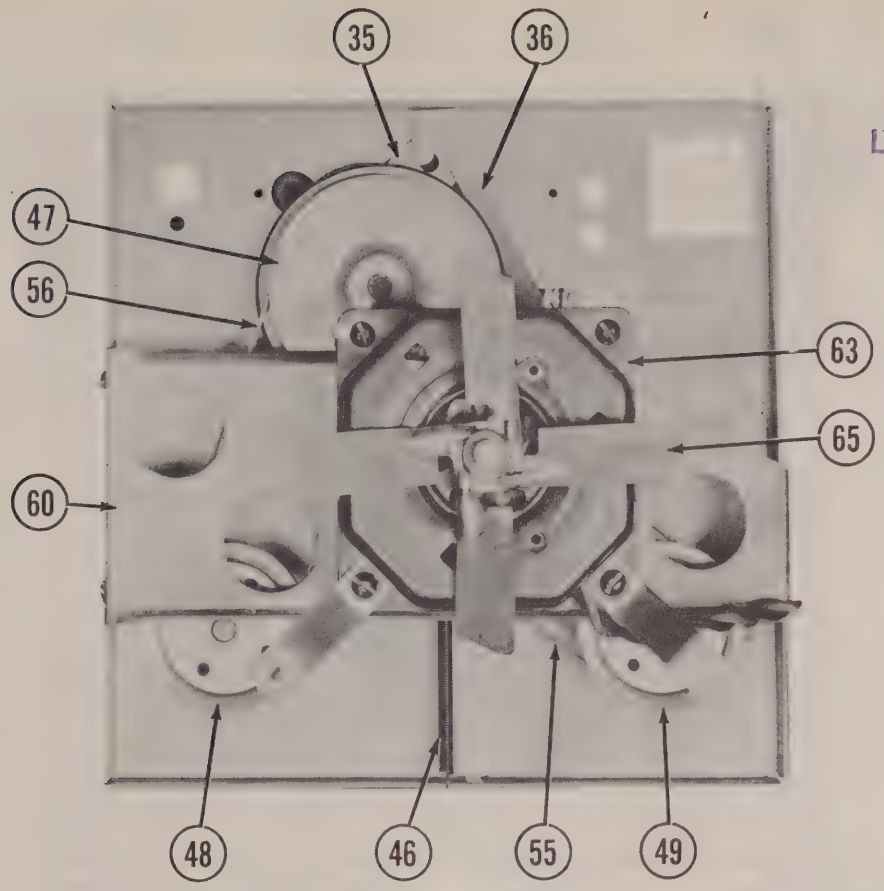

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Figure 3

wall receptacle and insert the mircophone plug into the "Input Jack" located on top of the recorder. Turn power on by turning "Off-Volume" control clockwise until a click is heard, and allow approximately one minute for warm-up. Thread tape as described under "Threading The Tape". Turn "Rec-Play-Idle" control to "Rec." position. Adjust "Volume" control until "Recording Level Indicator" flashes on high peaks only. To record from radio, phonograph, or television, follow same procedure as above, keeping volume of appliance at a normal level. To stop movement of tape, turn "Rec-Play-Idle" control to "Idle" position.

To Wind Or Rewind Tape-

Turn power on. Turn "Rec-Play-Idle" control to "Idle" position. Rewind tape by holding "Wind-Rewind" control in clockwise position. Wind tape by holding "Wind-Rewind" control in counter-clockwise position. Releasing this control will automatically stop movement of tape.

To Play Recordings-

Turn power on. Allow approximately one minute for warm-up. Turn "Rec-Play-Idle" control to "Play" position. Adjust "Volume" control for desired listening level. To stop movement of tape, turn "Rec-Play-Idle" control to "Idle" position.

CAUTION: Do not set "Rec-Play-Idle" control to "Record" position when "Play" is desired. In "Record" position previously recorded portion of tape is automatically erased.

To Edit And Splice Tape-

NOTE: Since it is impossible to edit and splice one track without affecting the other, recordings which are to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections etc. Unused sections of tape can be spliced together for re-use.

2. Cut tape at a 60^0 angle with an overlap so ends will line up. (Cutting tape at 60^0 angle will eliminate detection of splice on recording.)

3. Align both ends of tape, glossy side up. Cover aligned ends with splicing tape, evenly and securely, and trim off any excessive width.

Dual Track Recording-

The Telectro-Tape is designed so that only 1/2 the tape width is recorded at a time; thereby resulting in two track recording. This two track operation is accomplished in the following manner:

1. After a reel of tape has been recorded; i.e. all the tape wound onto the left reel, turn "Rec-Play-Idle" control to "Idle" position.

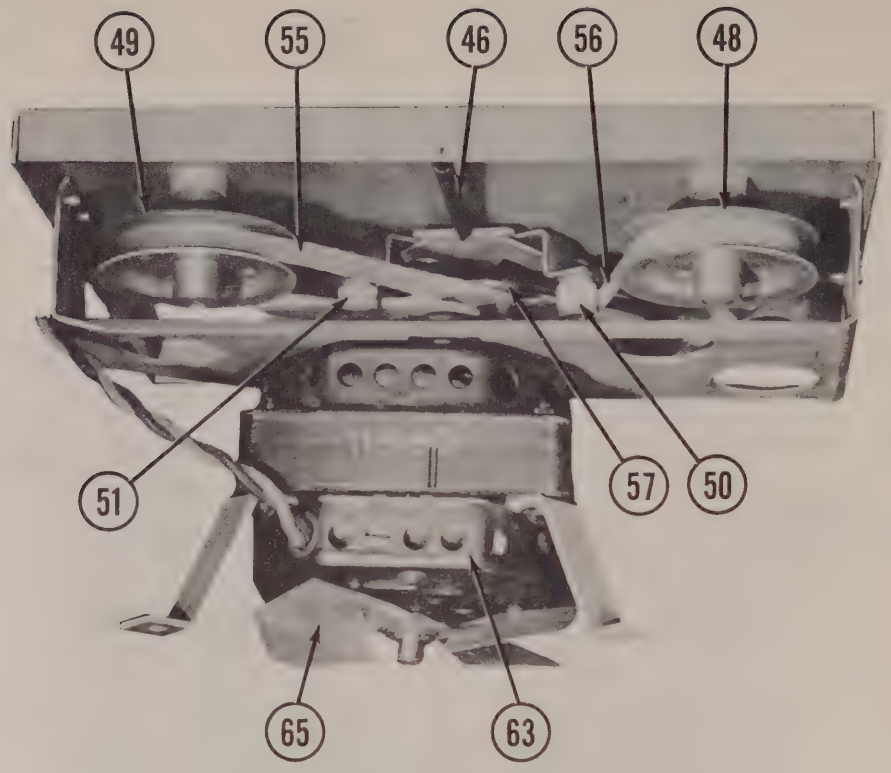

Figure 4

2. Remove the reels from the recorder, turning the full reel over and placing it on the right spindle.

3. Properly thread the tape and proceed with the recording.

4. After the second track has been recorded the first track of recording is ready to be played, without rewinding, by reversing the reels as described in Step #2 above.

ADJUSTMENTS

Play-Record Head Adjustment-

To adjust the play-record head for maximum frequency response, make the following adjustment.

1. Remove rear cover plate (6).

2. Properly thread an alignment tape or a good recorded tape on the machine.

3. Set the controls as described under "To Play Recordings".

Grip the vertical portion of the record head mounting bracket with a pair of long-nosed pliers. Rock the mounting bracket and record head from side to side slightly until the maximum high frequencies are obtained. Bend the bracket with the pliers to obtain a permanent set at this position.

4. Replace the rear cover plate (6).

Pressure Bar And Erase Head Actuating Cam (24) Adjustment-

Cam (24) should be adjusted so that the erase magnet (12) faces the front when the unit is in "Record" position. Adjust by loosening set screw in cam (24) and move the cam until the above condition exists. When properly adjusted in the "Record" position, the "Play-Idle" positions will also be correct.

Take-Up Tension Lever (35) Adjustment-

Lever (35) should be adjusted so that with tape threaded and "Rec-Play-Idle" control in "Idle" position, there is no movement of tape. If adjustment is required, loosen screw (31) and move lever (35) to obtain above results.

Rewind Tension Lever (36) Adjustment-

Lever (36) should be adjusted so that with tape threaded and "Rec-Play-Idle" control in "Idle" position, there is no movement of tape. If adjustment is required, loosen screw (29) and move lever (36) to obtain above results.

TROUBLES

Fails To Erase-

1. Erase head spring (15) loose or broken, resulting in erase head (12) not being pivoted forward to engage tape.

2. Pressure bar and erase head actuating cam (24) not adjusted properly. See "Pressure Bar And Erase Head Actuating Cam (24) Adjustment".

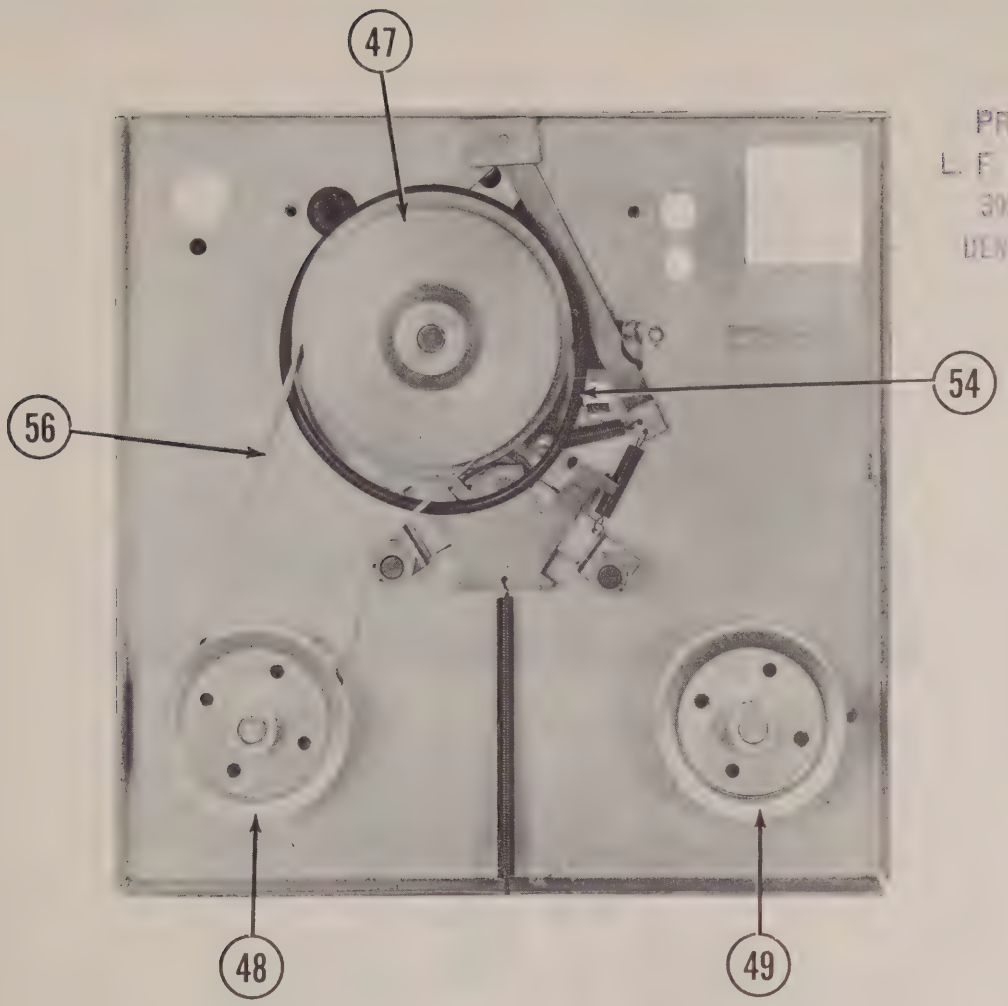

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Figure 5

Fails To Record-

1. Tape pressure pad not adjusted properly, resulting in the tape not being held against the recording head. Bend pressure pad spring just enough to hold tape firmly against recording head.

2. Check recording head connections.

3. Check amplifier for faulty components.

No Drive On Record Or Playback-

1. Rubber drive belt (54) loose or broken.

2. Take-up belt (56) loose or broken.

3. Defective motor.

4. Connecting leads fouling motor fan.

5. Flywheel and capstan shaft (47) binding.

Speed Variation Or "Wow"-

1. Check capstan (47), pressure roller (17), and motor pulley for oil or foreign material. Clean with soft cloth and carbon tetrachloride.

2. Check adjustment of tension levers (35) and (36).

No Wind Or Rewind-

1. Drive belt (54) loose or broken.

2. Belts (55) or (56) loose or broken.

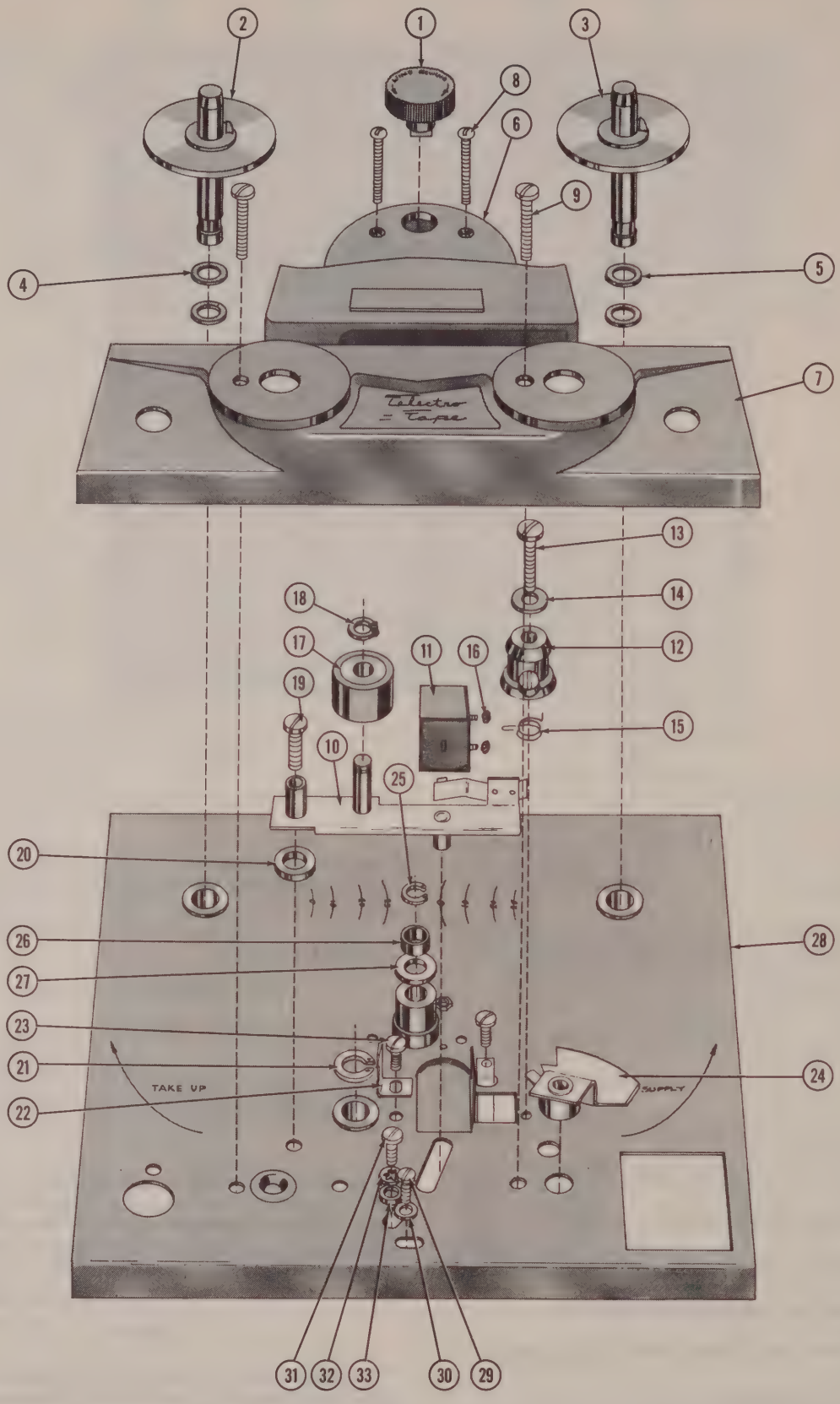
3. Check for oil or grease on driving surfaces. Clean with soft cloth and carbon tetrachloride.

LUBRICATION

All moving parts of this recorder are located in self lubricated oilite bearings, therefore, in normal use, no lubrication is necessary. When unit is disassembled for repair, clean all bearings with a clean soft cloth and apply a thin film of oil on bearing surface.

CLEANING

The pressure roller (17), capstan shaft (47), and play-record head (11) are subject to a coating of tape oxide which is worn off the tape as it passes these parts. This condition will cause poor performance and should be removed occasionally with a soft cloth and carbon tetrachloride.



A PHOTOFACT "EXPLODED" VIEW

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Figure 6A. Exploded View Of Parts Above Baseplate.

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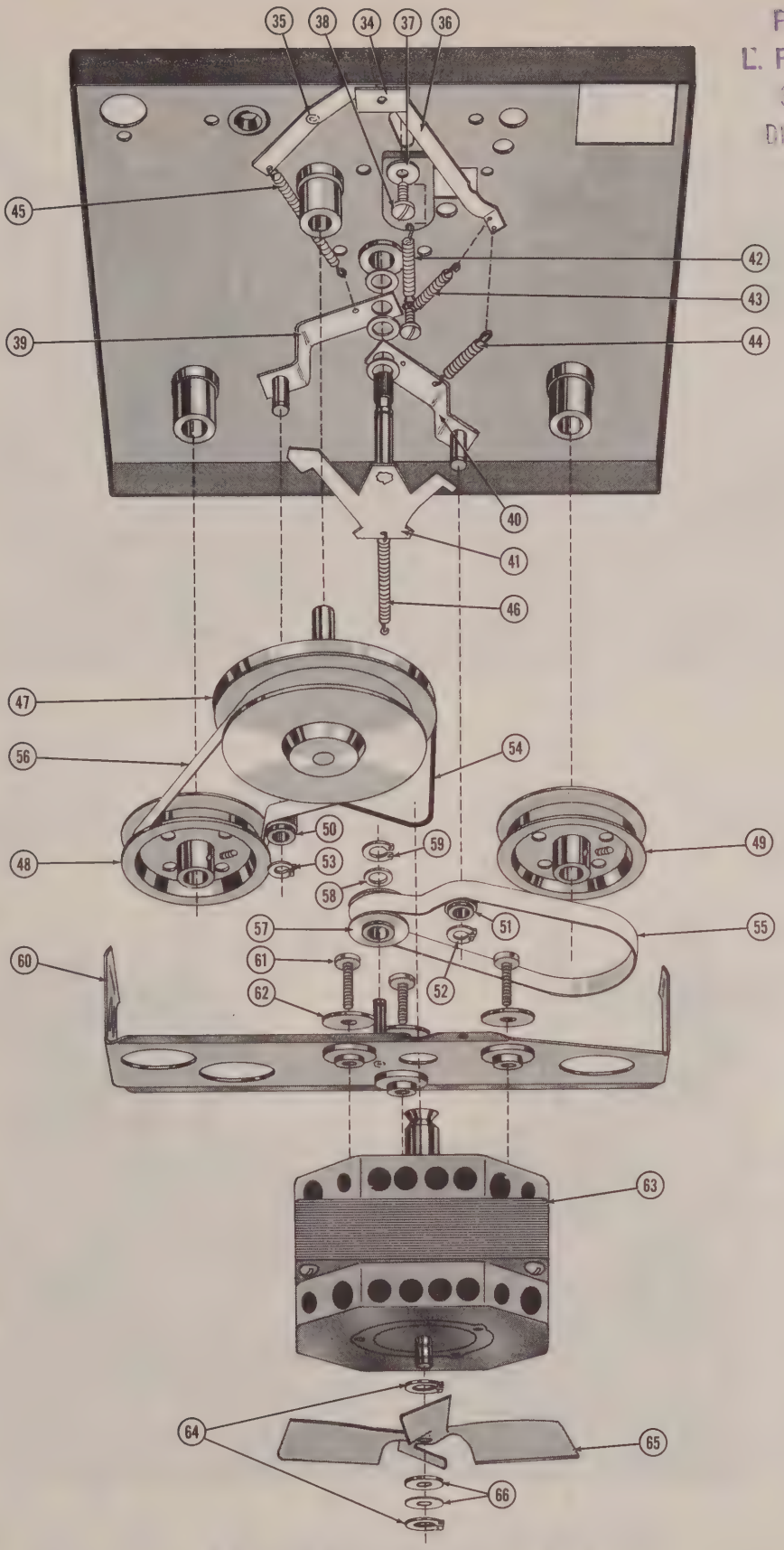

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Figure 6B. Exploded View Of Parts Below Baseplate.

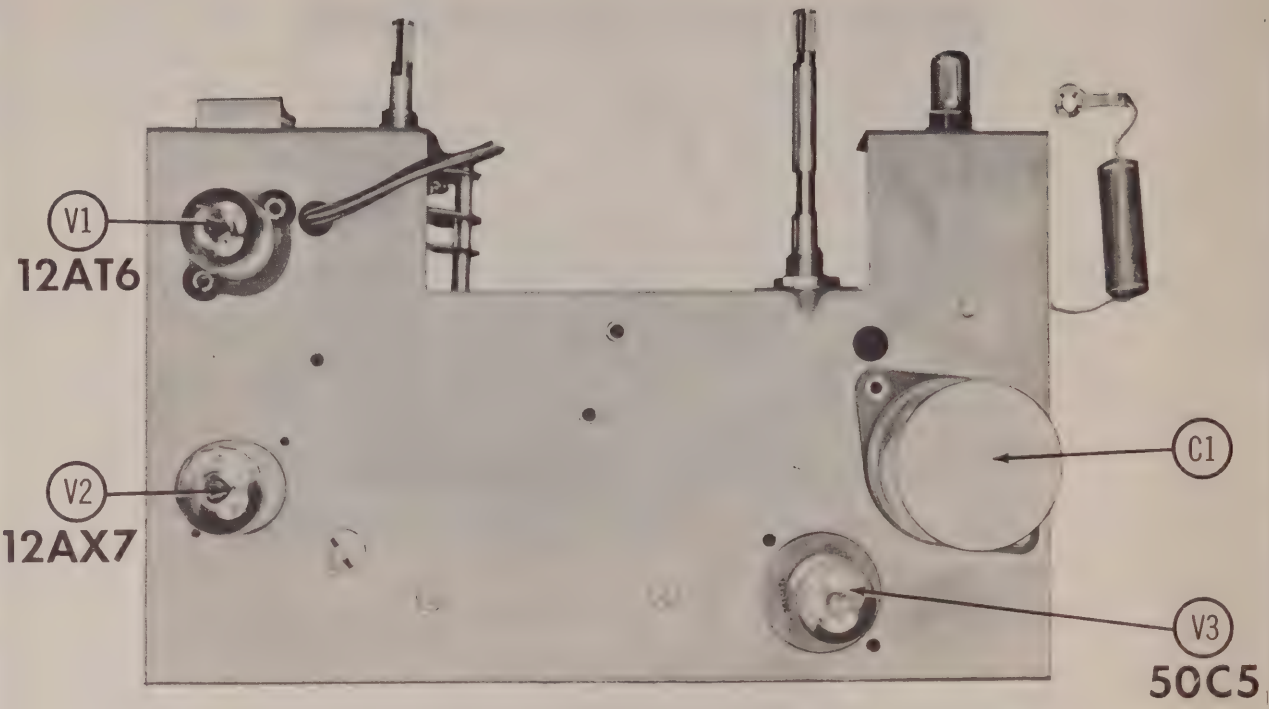


Figure 7

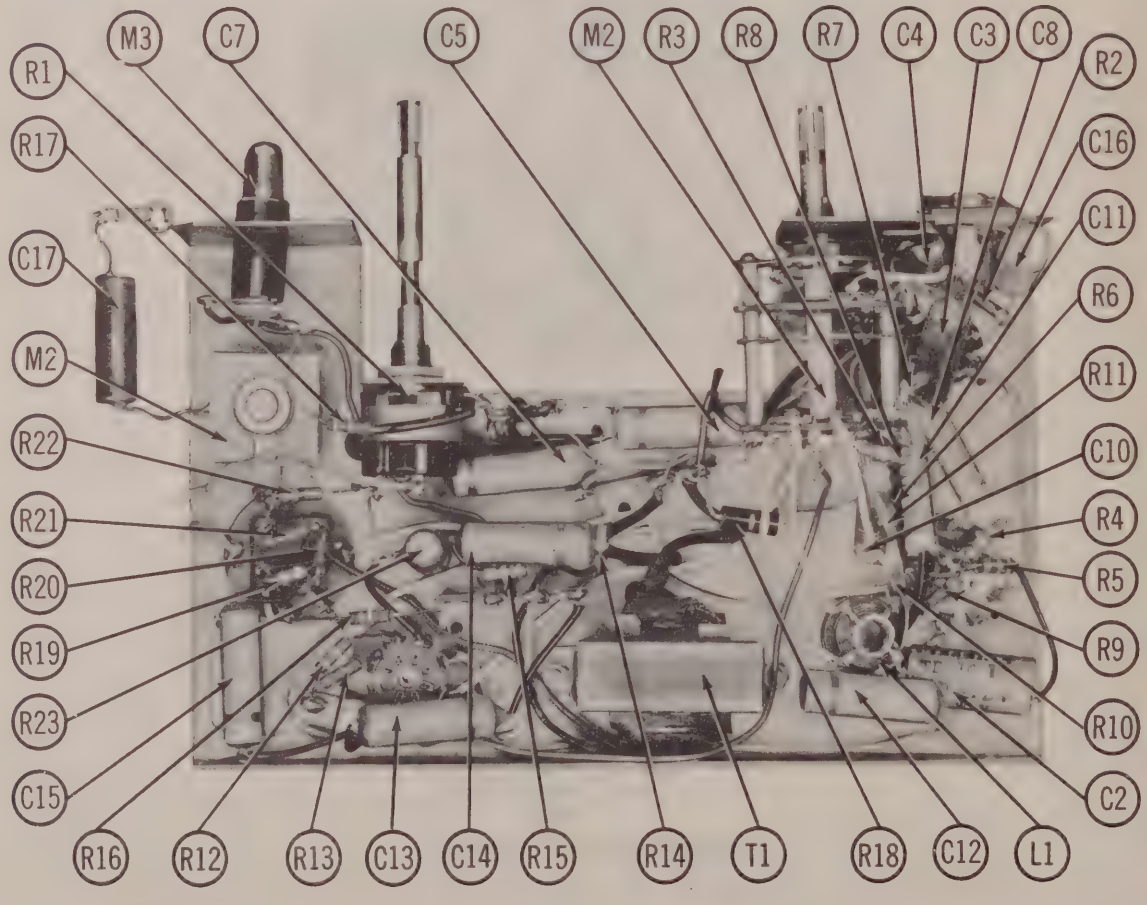
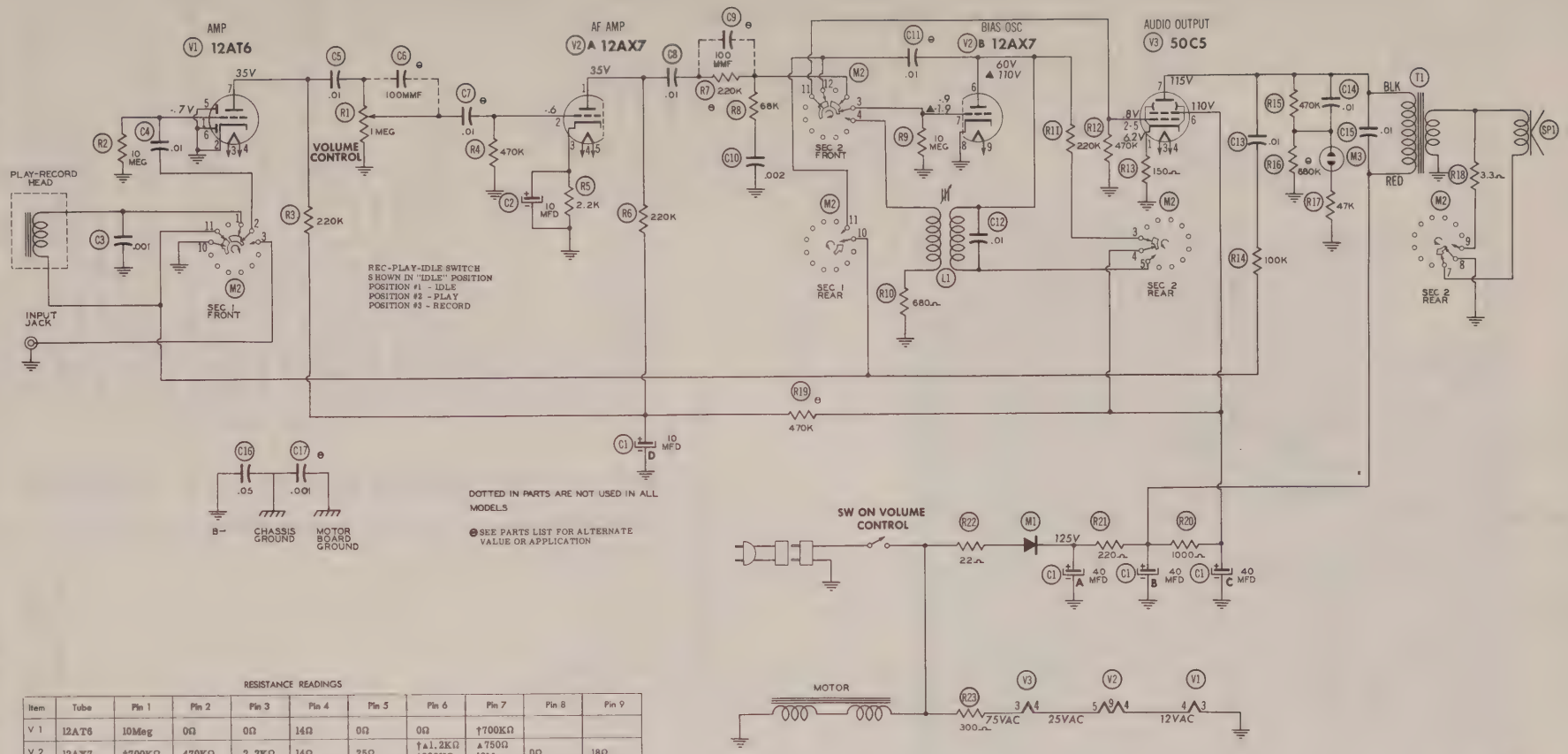


Figure 8



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AT6	10Meg	0Ω	0Ω	14Ω	0Ω	0Ω	†700KΩ		
V 2	12AX7	†700KΩ	470KΩ	2.2KΩ	14Ω	25Ω	†▲1.2KΩ †220KΩ	▲750Ω 10Meg	0Ω	18Ω
V 3	50C5	150Ω	470KΩ	60Ω	25Ω	470KΩ	†1.2KΩ	†350Ω		

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
† MEASURED FROM C1A
▲ MEASURED IN "RECORD" POSITION

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254-12

TELECTRO-TAPE
MODEL A

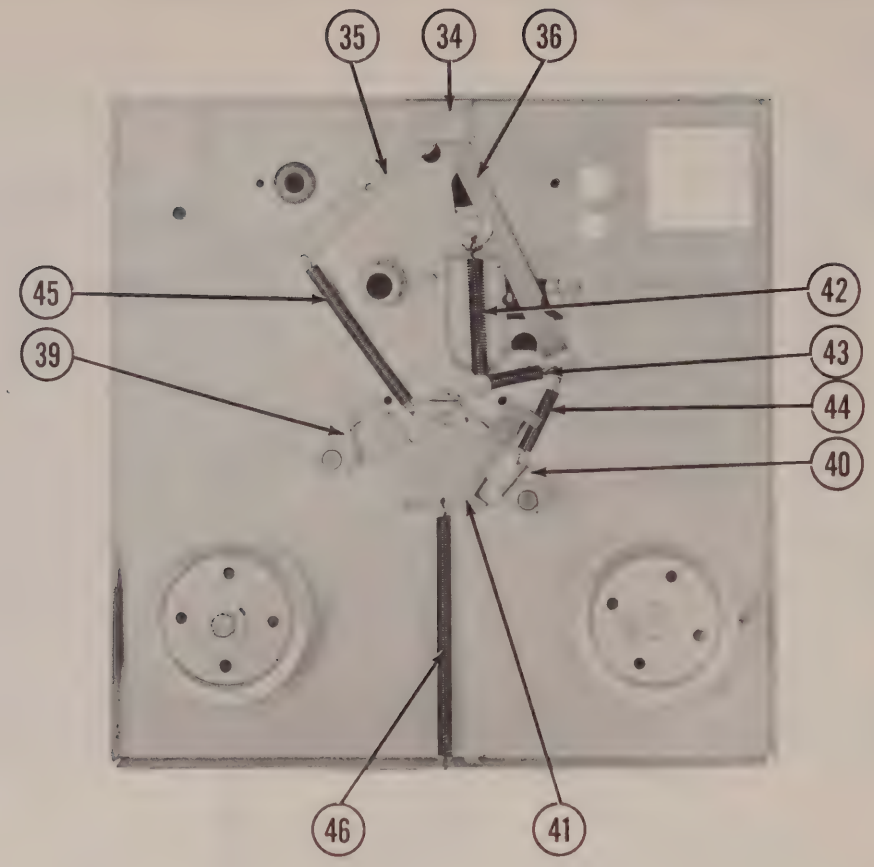

Figure 9

MECHANICAL PARTS LIST

Ref. No.	Description	Ref. No.	Description
1	Wind-Rewind Knob	29	Screw
2	Take-Up Spindle	30	Washer
3	Supply Spindle	31	Screw
4	Take-Up Spindle Washer	32	Internal Lock Washer
5	Supply Spindle Washer	33	Washer
6	Rear Cover Plate	34	Tapped Plate
7	Front Cover Plate	35	Take-Up Spindle Tension Adj. Lever
8	Rear Cover Plate Screws	36	Rewind Tension Adj. Lever
9	Front Cover Plate Screws	37	Pressure Bar Washer
10	Pressure Bar Assembly	38	Pressure Bar Screw
11	Play-Record Head	39	Wind Actuating Lever
12	Erase Head & Tape Guide	40	Rewind Actuating Lever
13	Erase Head & Tape Guide Screw	41	Wind-Rewind Control Shaft & Cam Assembly
14	Erase Head & Tape Guide Washer	42	Pressure Bar Spring
15	Erase Head & Tape Guide Spring	43	Rewind Tension Lever Return Spring
16	Play-Record Head Mounting Nut	44	Rewind Actuating Lever Spring
17	Pressure Roller	45	Wind Actuating Lever Spring
18	Pressure Roller Truarc Washer	46	Wind-Rewind Control Shaft & Cam Assembly Spring
19	Pressure Bar Screw		
20	Pressure Bar Spacer	47	Flywheel & Capstan Shaft Assembly
21	Capstan Shaft Truarc Washer	48	Take-Up Reel Pulley
22	Tape Guide Bracket	49	Supply Reel Pulley
23	Tape Guide Bracket Screw	50	Wind Actuating Lever Roller
24	Pressure Bar & Erase Head Actuating Cam	51	Rewind Actuating Lever Roller
25	Wind-Rewind Control Shaft & Cam Truarc Washer	52	Rewind Actuating Lever Roller Truarc Washer
26	Wind-Rewind Control Shaft & Cam Spacer	53	Wind Actuating Lever Roller Washer
27	Wind-Rewind Control Shaft & Cam Washer	54	Rubber Drive Belt
28	Main Mounting & Control Plate	55	Cloth Rewind Belt

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MECHANICAL PARTS LIST - Con't.

Ref. No.	Description	Ref. No.	Description
56	Cloth Take-Up Belt	62	Motor Mounting Washer
57	Rewind Belt Pulley	63	Motor Assembly
58	Washer	64	Fan Moutning Truarc Washer
59	Truarc Washer	65	Fan
60	Motor Mounting Plate	66	Fan Washer
61	Motor Mounting Screw		

ELECTRICAL PARTS LIST

Ref. No.	Description	Ref. No.	Description
V1	12AT6, Amplifier	R4	470KΩ, 1/2 Watt
V2	12AX7, AF Amp.-Bias Oscillator	R5	2.2KΩ, 1/2 Watt
V3	50C5, Audio Output	R6	220KΩ, 1/2 Watt
C1A	Elect. Cap., 40mfd. @150V.	R7	220KΩ, 1/2 Watt (Some Models Use A 470KΩ Resistor In This Application.)
C1B	Elect. Cap., 40mfd. @150V.		
C1C	Elect. Cap., 40mfd. @150V.	R8	68KΩ, 1/2 Watt
C1D	Elect. Cap., 10mfd. @150V.	R9	10Meg., 1/2 Watt
C2	Elect. Cap., 10mfd. @10V.	R10	680Ω, 1/2 Watt
C3	.001mfd. @600V.	R11	220KΩ, 1/2 Watt
C4	.01mfd. @200V.	R12	470KΩ, 1/2 Watt
C5	.01mfd. @200V.	R13	150Ω, 1/2 Watt
C6	100mmf. (Not Used In All Models)	R14	100KΩ, 1/2 Watt
C7	.01mfd. @200V. (Some Models Use A .05mfd. Cap. In This Application.)	R15	470KΩ, 1/2 Watt
		R16	680KΩ, 1/2 Watt (Some Models Use A 470KΩ Resistor In This Application.)
C8	.01mfd. @200V.		
C9	100mmf. (Not Used In All Models)	R17	47KΩ, 1/2 Watt
C10	.002mfd. @400V.	R18	3.3Ω, 1 Watt
C11	.01mfd. @200V. (Some Models Use A .002mfd. Cap In This Application.)	R19	470KΩ, 1/2 Watt (Some Models Use A 150KΩ Resistor In This Application.)
C12	.01mfd. @200V.	R20	1000Ω, 1/2 Watt
C13	.01mfd. @200V.	R21	220Ω, 1/2 Watt
C14	.01mfd. @200V.	R22	22Ω, 1/2 Watt
C15	.01mfd. @200V.	R23	300Ω, 10 Watt, W.W.
C16	.05mfd. @400V.	T1	Output Transformer
C17	.001mfd. @600V. (Some Models Use A .002mfd. Cap. In This Application.)	SP1	Speaker
		L1	Bias Oscillator Coil
R1	Volume Control And Switch, 1 Meg.	M1	Selenium Rectifier, 75ma
R2	10 Meg., 1/2 Watt	M2	Record-Play-Idle Switch
R3	220KΩ, 1/2 Watt	M3	Record Level Indicator, Type #NE51

RETMA MEMBER

ZENITH MODEL L600 (Ch. 6L40)

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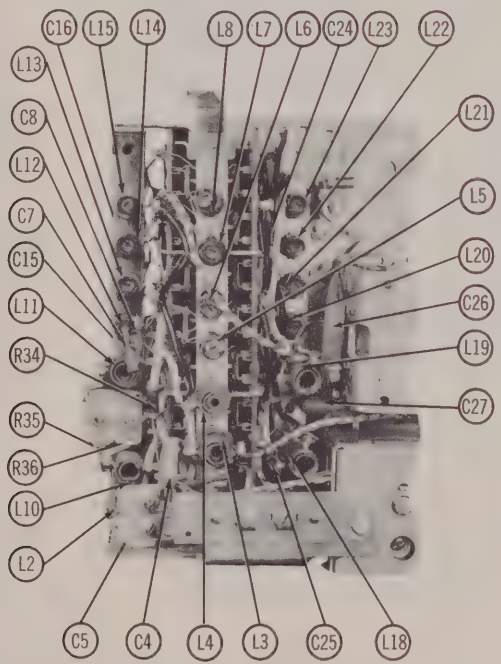
3924 MEADE ST.
DENVER, COLORADO

ZENITH MODEL L600 (Ch. 6L40)

TRADE NAME	Zenith Model L600 (Ch. 6L40)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.
TYPE SET	Three Power Portable Mult-Band Superheterodyne Receiver
TUBES (Five)	Types 1U4 RF Amp., 1L6 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	110-120 Volts AC-DC (or) 9 Volts "A" Supply & 90 Volts "B" Supply In Pack Form
RATING	.13 Amp. @ 117 Volts AC (or) 75MA @ 9 Volts DC & 21MA @ 90 Volts DC
TUNING RANGE	Band #1 (540-1600KC) Band #2 (4-8MC) Band #3 (2-4MC) Band #4 (17.4-18.2MC) Band #5 (14.8-15.6MC) Band #6 (11.5-12.1MC) Band #7 (9.4-9.8MC)



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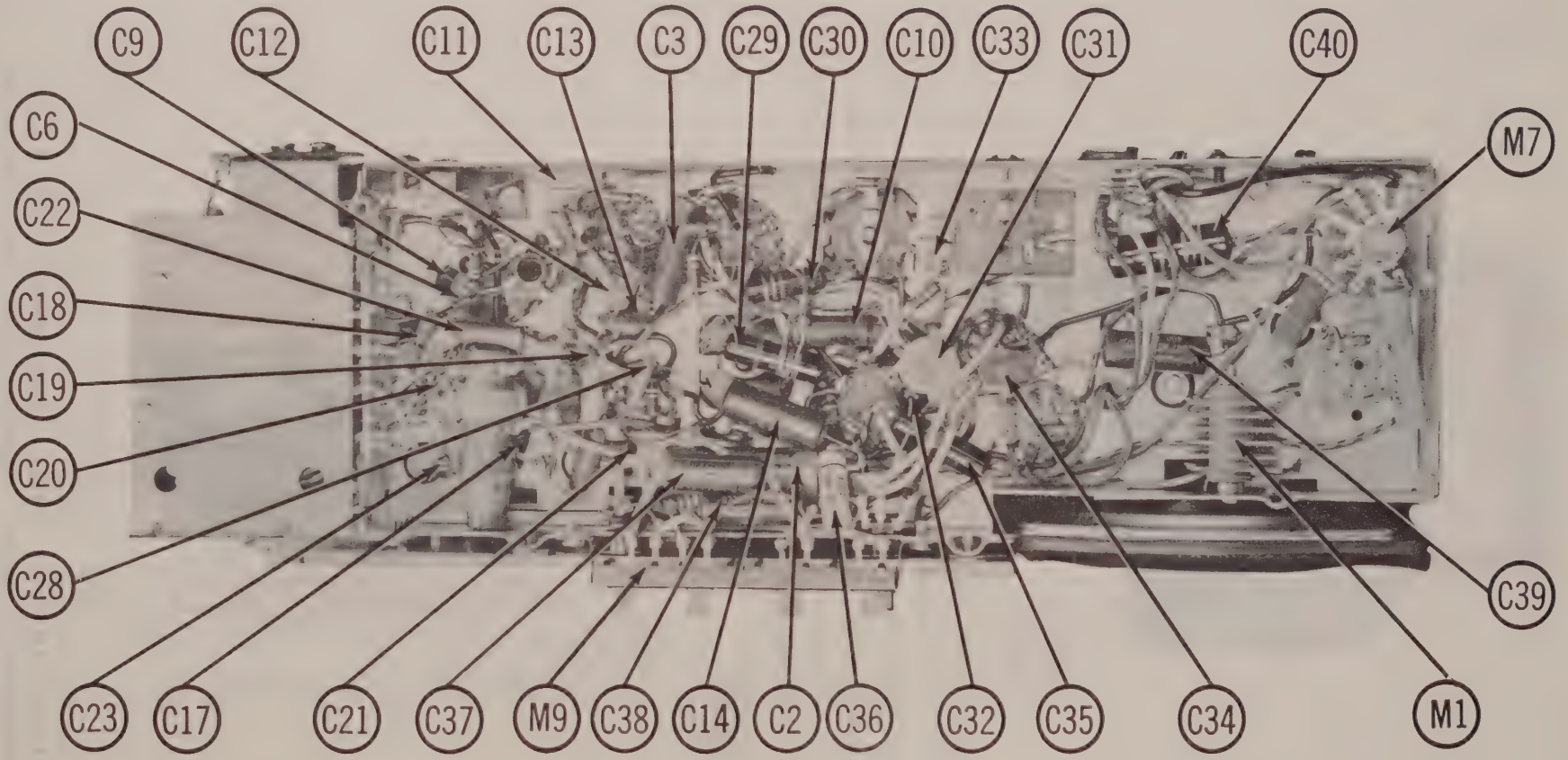
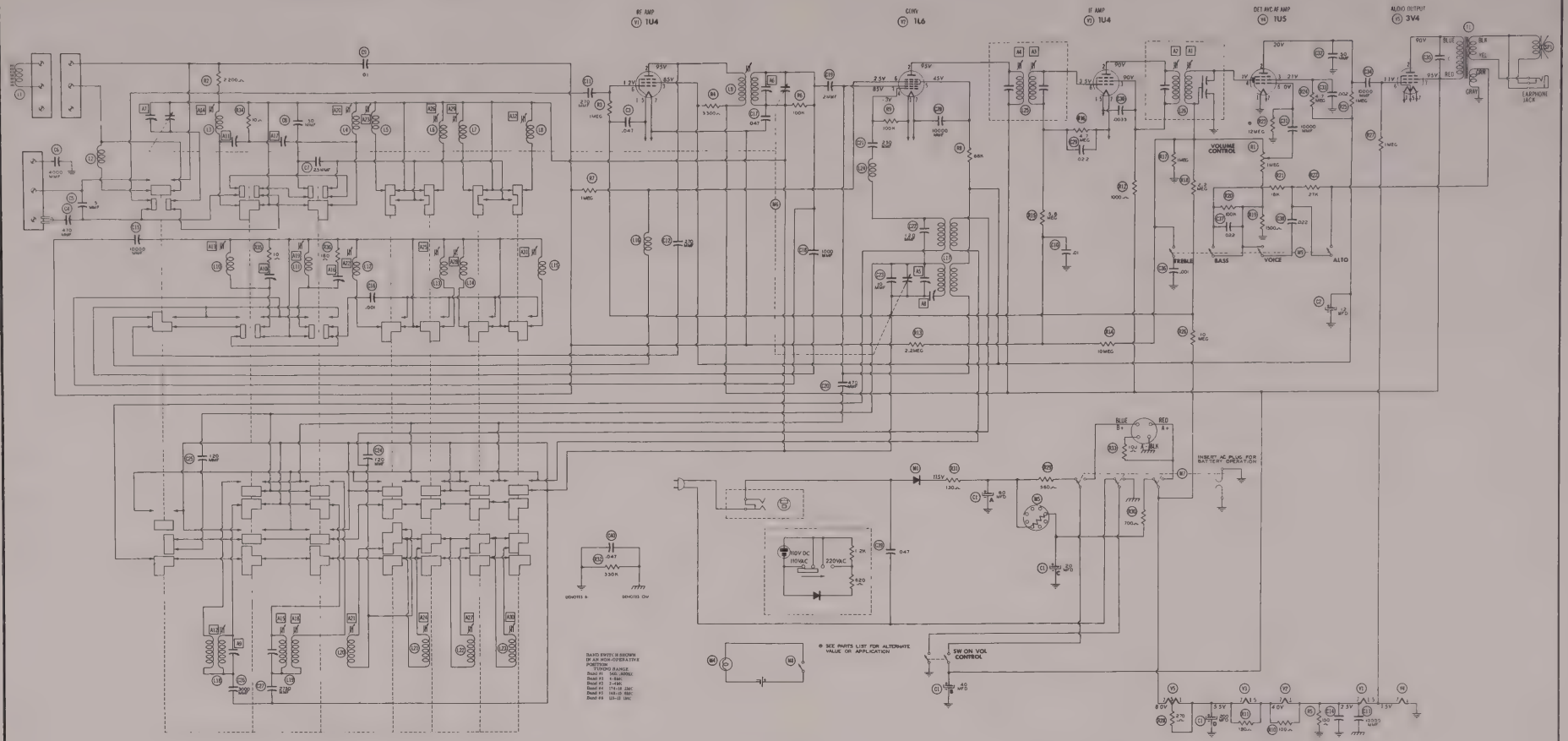


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



IF=455KC

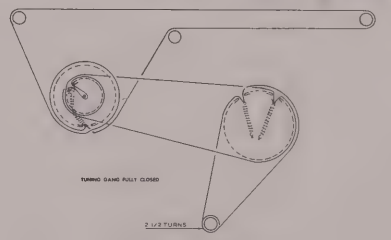
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured on 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Electrolytic capacitor polarities indicated + for minus negative.
4. Line voltage adjustment at 117 volts for voltage readings.
5. Marginal tolerance on component values is 5% possible ± variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal, applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	*	†700Ω	†4KΩ	3.2Meg	*	4.2Meg	*
V 2	1L6	*	†700Ω	†4KΩ	100KΩ	†72KΩ	4.2Meg	*
V 3	1U4	*	†1.7KΩ	†1.7KΩ	150Ω	*	2.5Meg	*
V 4	1U5	0Ω	†1Meg	†4.7Meg	1Meg	INF	12Meg	*
V 5	3V4	*	†1KΩ	†700Ω	3.2Meg	*	1Meg	*

* DO NOT USED OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM OUTPUT OF M1



DRIVE CORD STRINGING

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1954

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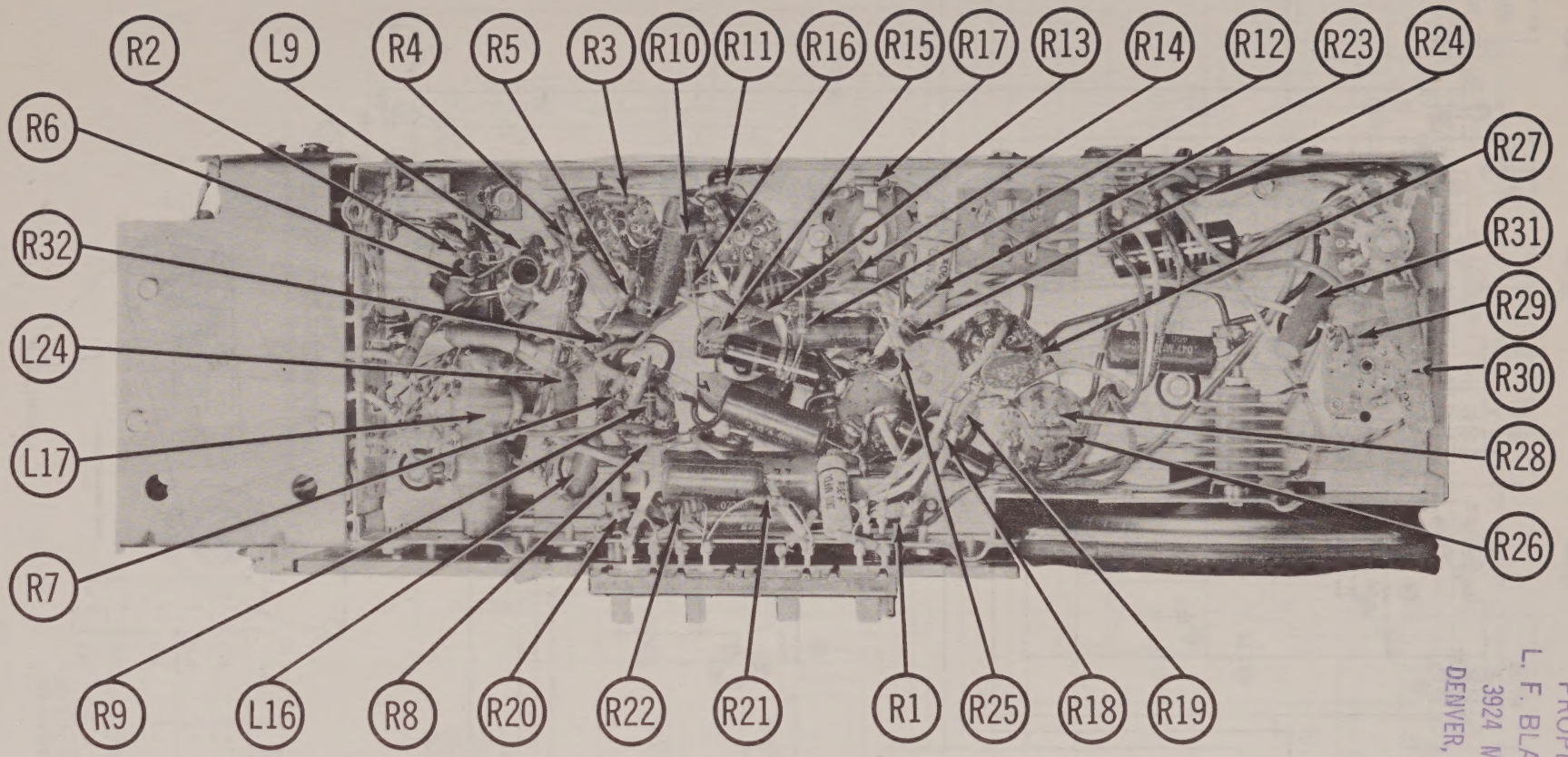


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

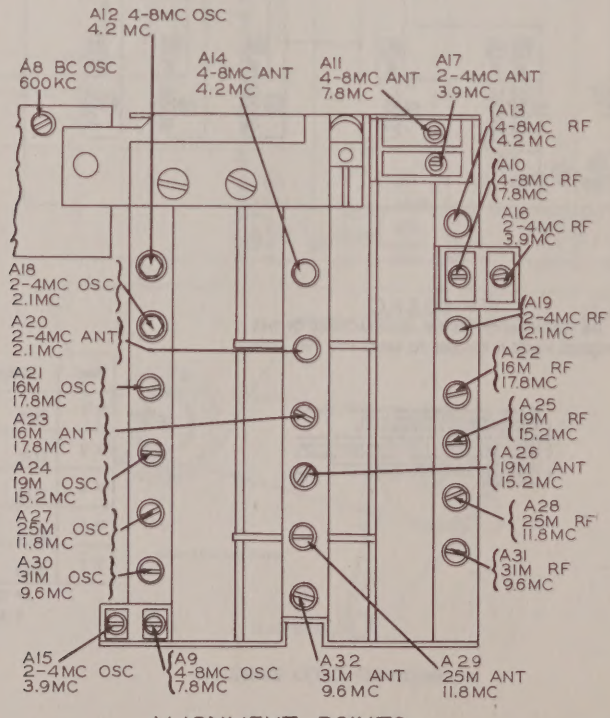
ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

During alignment the chassis should be placed over a metal plate approximately the same distance that the battery pack would be from the bottom of the chassis when the chassis is in the cabinet.
Zenith alignment wrench #68-19, or equivalent, should be used to adjust the IF transformer cores.
With tuning gang fully closed set the dial pointer to "0" on the logging scale (top dial scale).
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1L6 (V2). Low side to pin 1 (negative side of filament).	455KC (400%Mod)	Broad-cast	600KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1600KC	"	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	"	1400KC	"	A6, A7	"
4.		"	600KC	"	600KC	"	A8	Adjust for maximum output while rocking tuning gang thru 600KC signal.
5.		High side to 3 foot length of wire placed one foot from extended wave rod.	7.8MC (400%Mod)	4-8MC	7.8MC	"	A9, A10, A11	Adjust for maximum deflection.
6.		"	4.2MC	"	4.2MC	"	A12	Adjust for maximum output while rocking tuning gang thru 4.2MC signal.
7.		"	"	"	"	"	A13, A14	Adjust for maximum output. Repeat steps 6 and 7.
8.		"	3.9MC	2-4MC	3.9MC	"	A15, A16 A17	Adjust for maximum output.
9.		"	2.1MC	"	2.1MC	"	A18	Adjust for maximum output while rocking tuning gang thru 2.1MC signal.
10.		"	"	"	"	"	A19, A20	Adjust for maximum output. Repeat steps 9 and 10.
11.		High side to 3 foot length of wire placed one foot from extended whip ant.	17.8MC (400%Mod)	16 meters	17.8MC	Across voice coil	A21, A22 A23	Adjust for maximum output while rocking tuning gang thru 17.8MC signal.
12.		"	15.2MC	19 meters	15.2MC	"	A24, A25 A26	Adjust for maximum output while rocking tuning gang thru 15.2MC signal.
13.		"	11.8MC	25 meters	11.8MC	"	A27, A28 A29	Adjust for maximum output while rocking tuning gang thru 11.8MC signal.
14.		"	9.6MC	31 meters	9.6MC	"	A30, A31 A32	Adjust for maximum output while rocking tuning gang thru 9.6MC signal.

NOTE: After reinstalling chassis in cabinet, switch to the broadcast band and tune in a weak station near 1400KC and retouch A7 for maximum volume.


A12 4-8MC OSC 4.2 MC
A8 BC OSC 600KC
A14 4-8MC ANT 4.2MC
A11 4-8MC ANT 7.8MC
A17 2-4MC ANT 3.9MC
A13 4-8MC RF 4.2 MC
A10 4-8MC RF 7.8MC
A16 2-4MC RF 3.9MC
A18 2-4MC OSC 2.1MC
A20 2-4MC ANT 2.1MC
A19 2-4MC RF 2.1MC
A21 16M OSC 17.8MC
A22 16M RF 17.8MC
A23 16M ANT 17.8MC
A25 19M RF 15.2MC
A24 19M OSC 15.2MC
A26 19M ANT 15.2MC
A27 25M OSC 11.8MC
A28 25M RF 11.8MC
A30 31M OSC 9.6MC
A31 31M RF 9.6MC
A15 2-4MC OSC 3.9MC
A9 4-8MC OSC 7.8MC
A32 31M ANT 9.6MC
A29 25M ANT 11.8MC

ALIGNMENT POINTS

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		ZENITH PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	1U4	1U4	6AR	
V2	Converter	1L6	1L6	7DC	
V3	IF Amplifier	1U4	1U4	6AR	
V4	Det-AVC AF Amp.	1U5	1U5	6BW	
V5	Audio Output	3V4	3V4	6BX	

CAPACITORS

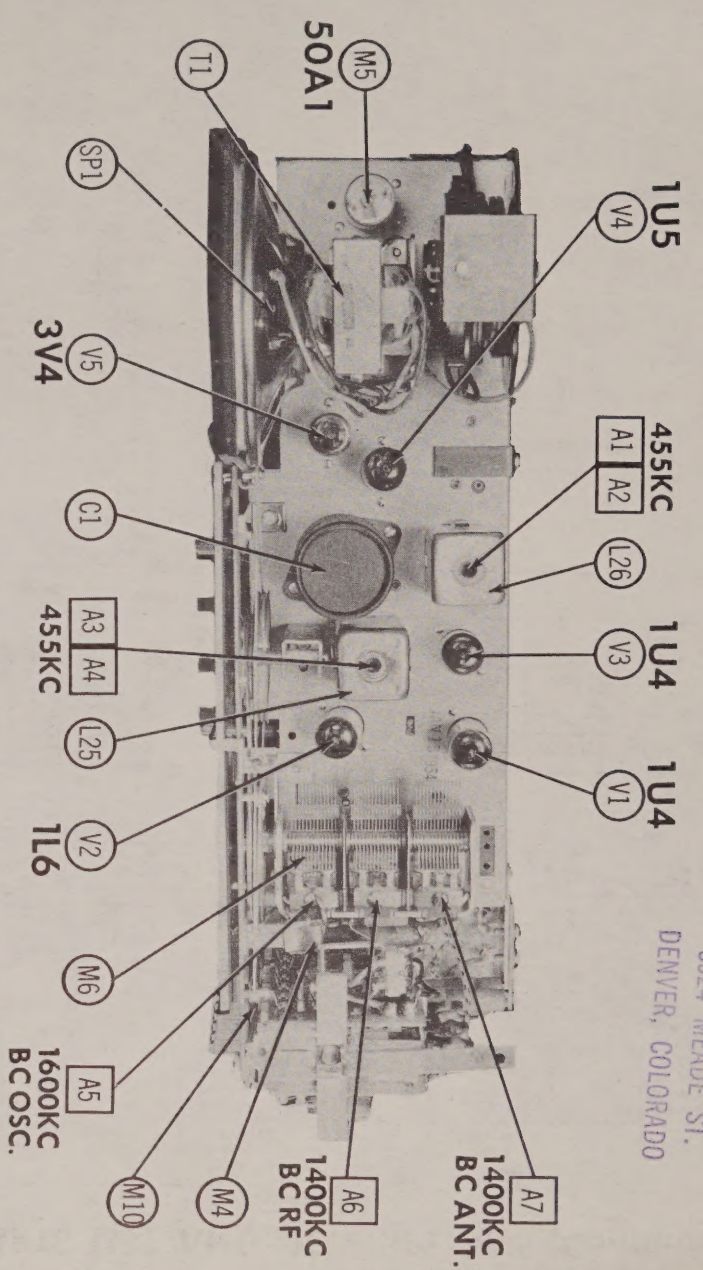
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	▲60	150	22-1741	AFH4-23		D030		FP408	R1079	
B	■40	150								
C	▲20	150								
D	200	10								
C2	12	150	22-2056	PRS150/12		BR1215		TC43	TVA-1407	
C3	.047	200	22-1778	P288-047	DF-503	PJ2S47		PT4147	2TM-S47	
C4	470	500	22-1390			5R5T47		MCE245	MS-35	
C5	15		22-2329	SI15	D6-150	TP11	GP1K-150	UC-5415	5GA-Q15	
C6	4000		22-4	BPD-004	DD-402	K078	801-004	DC-524	5HK-D4	
C7	25		22-1392	SI25	D6-250	TP25	GP1K-250	UC-5425	5GA-Q25	
C8	50		22-1761	SI50	D6-500	TP30	GP1K-500	UC-5450	5GA-Q50	
C9	.01	400	22-1784	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C10	.01	400	22-1846	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C11	270	500	22-2058			5R5T27		MCE240	MS-33	
C12	270	500	22-2058			5R5T27		MCE240	MS-33	
C13	10000		22-3	BPD-01	D6-103	K082	801-01	DC-511	5HK-S1	
C14	.1	200	22-1777	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C15	10000		22-3	BPD-01	D6-103	K082	811-01	DC-511	5HK-S1	
C16	.001	600	22-2127	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C17	.047	400	22-1775	P488-047	DF-503	CUB4S47		PT415	4TM-S5	
C18	1000		22-1886	SI1000	D6-102	TP52	GP2L-102	UC-521	5HK-D1	
C19	1.2		22-1765							
C20	470	500	22-1390			5R5T47		MCE245	MS-35	
C21	250		22-2126	SI250	D6-251	TP40	GP1K-251	UC-5325	5GA-T25	
C22	120		22-2279	SI120NP0	TCZ-121	TZ32	NP0K-121		5TCC-T12	
C23	10		22-1953	SI10	D6-100	TP09	NP0K-100	UC-541	5TCC-Q1	
C24	120		22-2279	SI120	D6-121	TP35	GP1K-121	UC-5312	5GA-T12	
C25	120		22-2280	SI120	D6-121	TP35	GP1K-121	UC-5312	5GA-T12	
C26	3000	500	22-2281			1R5D3		MCE461	MS-23	
C27	2750	500	22-1433			1R5D27		MCE460		
C28	10000		22-3	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C29	.022	200	22-2071	P288-022		PJ2S22		PT4122	2TM-S22	
C30	.0033	400	22-1780	P688-0033	D6-332	CUB6D33	GP2-333-332	PT6233	6TM-D33	
C31	10000		22-3	BPD-01	D6-103	K082	811-01	DC-511	5HK-S1	
C32	50		22-1674	SI50NP0	TCZ-50	TZ23	NP0K-500		5TCC-Q5	
C33	.022	400	22-2072	P488-022		CUB4S22		PT4122	4TM-S22	
C34	10000		22-3	BPD-01	D6-103	K082	811-01	DC-511	5HK-S1	
C35	.01	600	22-1779	P688-01	D6-103	CUB6S1	GP2-333-103	PT611	6TM-S1	
C36	.001	600	22-2127	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C37	.022	200	22-2071	P288-022		PJ2S22		PT4122	2TM-S22	
C38	.022	200	22-2071	P288-022		PJ2S22		PT4122	2TM-S22	
C39	.047	600	22-1844	689ZX-047	DF-503	CUB6S47		PT6147	6TM-S47	
C40	.047	400	22-1775	P488-047	DF-503	CUB4S47		PT4147	4TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1 Meg	½	63-2276	Q11-137	A47-1Meg-3	AB-69	U-54	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWE-20	KB-2	US-27	Attach to R1A

CHASSIS—TOP VIEW



PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R2	2200Ω	½	63-1800	BTS-2200	
R3	1 Meg	½	63-1912	BTS-1 Meg	
R4	3300Ω	½	63-1807	BTS-3300	
R5	150Ω	½	63-1750	BTS-150	
R6	100KΩ	½	63-1869	BTS-100K	
R7	1 Meg	½	63-1912	BTS-1 Meg	
R8	68KΩ	½	63-1863	BTS-68K	
R9	100KΩ	½	63-1869	BTS-100K	
R10	100Ω	½	63-1743	BTS-100	
R11	120Ω	½	63-1747	BTS-120	
R12	1000Ω	½	63-1785	BTS-1000	
R13	2. 2Meg	½	63-1926	BTS-2. 2Meg	
R14	10 Meg	½	63-1954	BTS-10 Meg	
R15	5. 6Meg	½	63-1943	BTS-5. 6Meg	
R16	4. 7Meg	½	63-1940	BTS-4. 7Meg	
R17	1 Meg	½	63-1912	BTS-1 Meg	
R18	2. 2Meg	½	63-1926	BTS-2. 2Meg	
R19	1500Ω	½	63-1792	BTS-1500	
R20	100KΩ	½	63-1869	BTS-100K	
R21	18KΩ	½	63-1838	BTS-18K	
R22	27KΩ	½	63-1845	BTS-27K	
R23	12 Meg	½		BTS-12 Meg	Note 1
R24	4. 7Meg	½	63-1940	BTS-4. 7Meg	
R25	1 Meg	½	63-1912	BTS-1 Meg	
R26	10 Meg	½	63-1954	BTS-10 Meg	
R27	1 Meg	½	63-1912	BTS-1 Meg	
R28	270Ω	½	63-1761	BTS-270	
R29	560Ω	½	63-1775	BTS-560	
R30	700Ω	4	63-2930		
R31	130Ω	3	63-2839		
R32	330KΩ	½	63-1891	BTS-330K	
R33	100Ω	½	63-1743	BTS-100	
R34	10Ω	½	63-1701	BTS-10	
R35	10Ω	½	63-1701	BTS-10	
R36	180Ω	½	63-1754	BTS-180	

Note 1. Some models may use a 15Meg resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.1	ZENITH PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	9. 8KΩ	3. 5Ω SEC.2 14. 2Ω Res.	95-1369						

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3. 5Ω	49-728	ST-803 Mod. P525-V	52A1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	. 9Ω		S-20813				Standard broadcast (540-1600KC)
L2	Ant. Loading Coil	1. 6Ω		S-20820	19-7047		4628	48 Microhenries
L13	Ant. Coil	. 1Ω		S-18735				4-8MC
L4	Ant. Coil	1. 2Ω		S-18614				2-4MC
L5	Ant. Coil	. 2Ω		S-17718				16 Meter band (17. 4-V8. 2MC)
L6	Ant. Coil	. 2Ω		S-17719				19 Meter band (14. 8-15. 6MC)
L7	Ant. Coil	. 2Ω		S-17720				25 Meter band (11. 4-12. 2MC)
L8	Ant. Coil	. 3Ω		S-17721				31 Meter band (9. 3-9. 9MC)
L9	RF Coil	4Ω	6Ω	S-20844	14-1072	BC-382 *	72-RF *	540-160KC
L10	RF.Coil	. 1Ω		S-18615				4-8MC
L11	RF Coil	1. 2Ω		S-18614				2-4MC
L12	RF Coil	. 2Ω		S-17714				17. 4-18. 2MC
L13	RF Coil	. 3Ω		S-17715				14. 8M15. 6MC
L14	RF Coil	. 3Ω		S-17716				11. 4-12. 2MC
L15	RF Coil	. 4Ω		S-17717				9. 2-9. 9MC
L16	RF Coupling	. 2Ω		S-20843	19-1002		4606	3 Microhenries
L17	Osc. Coil	Pri. 1= 3. 5Ω Pri. 2= . 8Ω	Sec. 1= 5. 2Ω Sec. 2= 0Ω	S-17709				540-1600K=

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L18	Osc. Coil	. 8Ω	. 1Ω	S-17730				4-8MC
L19	Osc. Coil	. 7Ω	. 4Ω	S-17731				2-4MC
L20	Osc. Coil	. 1Ω		S-17726				17. 4-18. 2MC
L21	Osc. Coil	. 1Ω		S-17727				14. 8-15. 6MC
L22	Osc. Coil	. 2Ω		S-17728				11. 4-12. 2MC
L23	Osc. Coil	. 3Ω		S-17729				9. 3-9. 9MC
L24	Osc. Coupling	. 2Ω		S-14403	19-1003		4608	4 Microhenries
L25	Input IF	27Ω	25Ω	95-1148	16-6666	BC-368	1312-C1	
L26	Output IF	24Ω	23Ω	95-1149	16-6778 †	BC-355 †	12-C2 †	

* Drill mounting hole.
† Use adaptor plate.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	ZENITH PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.	SELETRON PART No.	
M1	. 07IA	212-13 212-7 ①	1101A	RS100	6S100	100	5M4	① Alternate

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	9V "A" 90V "B"	Z-985X			752			G6B60	
M3	1. 5V	Z-1	1052P			8R			Pilot light battery

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Dial light	100-171	# 222 screw base
M5	Tube	100-162	Ballast 50A1
M6	Tuning cap	22-2520	3 sections at 16-462MMF each
M7	Switch	85-543 or 85-520	Power changeover
M8	Switch	85-542	Momentary contact (dial light)
M9	Switch	85-503	Tone- 4 used
M10	Switch	S-20821	Push button band selector including bracket & coil assembly
		85-502	Push switch only-part of S-20821 - 7 used
		S-17806	Bandswitch mounting bracket & terminals part of S-20821
	Trimmer Cap	22-2282	Single section (AM osc. coil adjust)
	Trimmer Cap	22-2283	Dual section (2-4, 4-8MC osc. adjust)
	Trimmer Cap	22-2284	Dual section (2-4, 4-8MC osc. RF coil adjust)
	Trimmer Cap	22-2285	Dual section (2-4, 4-8MC ant. coil adjust)
	Antenna	S-15802	Telescoping assembly
	Cabinet	14-1633	
	Knob	46-912	Push button, 7 used
	Knob	46-913	Tuning
	Knob	46-1242	Volume